

The SQ FX Made EZ 4U

Clark Salisbury

Welcome back, you programming devils, you. We've looked at a lot of the stuff that goes into making up SQ sounds — waves, filtering, modulation, enveloping and so on — so now it's time to start delving into the SQ effects section.

The SQ provides two signal paths (or buses) to the effects processor — FX1 and FX2. A third bus, called "Dry" is used to bypass the effects section and send the signal directly to the SQ's outputs. These buses are accessed separately for each voice in a sound via the SQ's output section.

The effects built into the SQ generally fall into two main categories: Single and multiple effects. The single effects provide a single, highly optimized stereo effect, such as the "Concert Reverb" or the "8-Voice Chorus" effects. The multiple effects include such things as the "Chorus+Reverb," "Flanger+Reverb" and "Phase Shifter+Reverb." The multiple effects can actually include as many as five separate effects, as in the case of the "Cmprss+Dist+Verb" effect, which includes compression, flanging, distortion, reverb and filtering.

The two effects busses, called "FX1" and "FX2," are used with the single effects to control how much effect each voice in a sound will get. For example, one voice in a sound could be sent to FX1 with a 40% wet-to-dry mix (40% of the signal that appears at the outputs of the SQ is from the effect, 60% is dry and un-effected), and another voice in the sound could be sent to FX2 with a 15% wet/dry mix.

With the multiple effects the busses are used somewhat differently. With the "Chorus+Reverb" effects, for example,

voices sent to FX1 are processed through both the chorus and reverb, while voices sent to FX2 are processed through the reverb alone.

There are 13 effects algorithms available in the SQ. Included are six single effects: Concert Reverb, Hall Reverb, Room Reverb, Warm Chamber, 8-Voice Chorus and Phase Shifter. The other seven effects algorithms are all multiple: Chorus+Reverb, Flange+Reverb 1, Flanger+Reverb 2, Phaser+Reverb, Rotary Spkr+Verb, Dist+Chorus+Verb and Cmprss+Dist+Verb.

Of course, there's more to effects programming than simply selecting algorithms and routing the voices. Each effect algorithm is fully user programmable. You can adjust reverb decay times, chorusing rate and depth, distortion amount and so on. In addition, a number of effect parameters can be modulated in real time from a number of the controllers or modulators. You can assign the modwheel to control flanger rate, for example, or use velocity to control reverb amount. All in all, there's a lot of stuff you can do here, so we'll be spending some quality time in this area over the next couple of installments. For now, though, we'll begin our sojourn through the effects section of the SQ with a look at routing.

Let's start by selecting ROM #14, "Jazz Izz." Press EDIT, then WAVE, and then "0" to move to the "SelectVOICE:" page. All three voices are active in this sound — they're all set to "ON." Select the first voice and hit UP to solo it — if you play a few notes across the keyboard, you'll find that this voice accounts for the acoustic piano found in the upper ranges. Now solo voice2, and check it out the same way. Aha

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— this voice is used for the bass sound in the patch. Further investigation reveals that voice3 is used for the hi-hat sample that's layered with the bass sound on the lower half of the keyboard. For now, let's turn off this voice so that we can concentrate on just the bass and piano sounds.

Hit EFFECT, then 0 to move to the top of the effects menu pages. You will find that the Hall Reverb algorithm is the one selected for this program. Also note that the FX1 bus is set to 30% wet/dry mix, and FX2 is set to 57%. Let's check out the voice routing for this sound.

Return to the "SelectVOICE:" page (hit WAVE, then 0) and select voice1 (it should be flashing). Now hit OUTPUT, and then 2 to move to the "Output Bus" page. You will find that voice1 (the piano sound) is being sent to bus FX1 (since the display is showing "Output Bus=FX1"). Now let's repeat the process with voice2, the bass sound — select it and then return to the "Output Bus" page. You'll find that it is also being sent to the FX1 bus.

Select "FX1" on this page, and change it to "DRY" by hitting the Down arrow. If you play the lower half of the keyboard now, you'll find that the bass sound no longer has reverb — it is being passed directly to the output section without being routed to the effects at all. If you play the piano sound, though, you'll find that it still has reverb, since it is still being routed to FX1. Now let's assign the bass sound, (voice2), back to the FX1 bus. Select "Dry" and hit the up arrow button once. Now select the piano sound (voice1) by hitting WAVE, then 0, and selecting the first voice. Return now to the "Output" section, and change "FX1" to "FX2." Notice that the piano now sounds a bit "wetter" — that's because FX2 is set for a higher percentage of wet-to-dry mix — 57% to be exact. Let's check this out further. Hit the "Effect" button to return to the effects section. You should be seeing this:

HALL REVERB
FX1=30 FX2=57

Let's turn the reverb down a bit on the bass, and up a bit on the piano. Select the "FX1" bus ("FX1=30"), and use the slider and/or buttons to change this to something like "16" or so (by the way if you set this value to "00," it will have the same effect as bypassing the effect altogether). Notice now that the reverb sound on the bass has gotten very subtle. Now select the "FX2" bus ("FX2=57"), and turn it up — let's be crazy and try something like, oh, say "72" — a pretty high value. Notice now that the piano sounds very wet. Let's try another example.

Using the same bass and piano sound that we've been working with so far, select the effect itself — in this case "HALL REVERB" — the words should start flashing. Now hit the up arrow. The effect should change to "ROOM REVERB." Now hit it again, two more times. You should come to the "8-VOICE CHORUS" effect. You'll notice that the 8-Voice Chorus algorithm is preset to a 50% mix for both effect busses. Select the FX1 bus, and adjust its value down to around "38" or so — you'll find that the chorusing on the bass becomes fairly subtle now, while the chorusing on the piano remains pretty dramatic.

Now before we go on, I should point something out. If you now return to the "Hall Reverb" effect, you'll find that the values set for the FX1 and FX2 busses are no longer where we previously set

them, but have returned to their default values of 25% for each bus. This is because each time you select an effect algorithm in the SQ, the default setup for that effect is loaded into the ESP (Ensoniq Signal Processor) chip, replacing whatever was there previously. This is no big deal right now, but sooner or later you'll be working happily away devising the perfect effect for that new bazouki patch using the "Rotory Spkr+Verb" algorithm, when you'll suddenly wonder what the bazouki would sound like through the distortion effect. You'll select the "Cmprss+Dist+Verb" algorithm and check it out. You'll most likely decide that you were better off using the originally intended "Rotory Spkr+Verb" effect, but when you re-select its algorithm you'll find that all the parameters you've been working so hard to get just right have reset themselves to the default setting for the effect.

So as we progress and you become more and more adept at creating new and stunning effects on your SQ, remember this cardinal rule. If you've developed an effect you like, save the sound you're working on to memory before trying out new effects. That way, if the Screaming Bazouki patch doesn't work out, you can always re-select the stored version to get back to the effect you'd originally created.

Anyway, that's how effect busses work when used with single effects. But what happens when you're using multiple effects? Let's check it out.

Using the same bass and piano sound, select the effect and change it to "CHORUS+REVERB," and check out the result by playing a few notes. You'll find that now the bass is being processed through the reverb and chorus, while the piano is being processed through the reverb alone. We can adjust the amount of reverb on either sound by changing the values for "FX1" and "FX2." For example, if you want just chorusing on the bass and just reverb on the piano, set the value for "FX1" to "00." If you want chorusing on the piano, but not on the bass, however, you'll need to change the output assignments for the piano and bass voices. From the output section (hit OUTPUT, then 2) piano would be assigned to the FX1 bus, and bass would be assigned to the FX2 bus.

"But how do you adjust the chorus amount?" I hear you asking. Well, this parameter (along with many others) is adjusted from within the effect algorithm itself. And this being the beginning of a fairly deep subject, and me with limited space and limited attention span, I think we'd best save this stuff for the next installment. ■

Bio: Clark Salisbury is a partner in the MIDI Connection, a Portland-based consulting firm. He has been

actively involved in the composition, performance, and recording of electronic music for over 7 years and is now producing his own pop-oriented compositions. His favorite color is chrome.



RND (🎵🎵🎵)

Ensoniq News

New library releases:

EPS-16 PLUS/EPS: ESS-17 Jason Miles Signature Series, with artwork by renowned artist, Peter Max. Jason Miles is one of the top studio synthesist/producers, having worked with Miles Davis, Marcus Miller and Luther Vandross, among others. This 5 disk collection of sounds contains some of the strongest all-around sounds ever released for the EPS series. Also includes a special appearance by R&B vocalist Nona Hendryx! Suggested retail price: \$39.95

SL-8 String Quartet Includes arco and vibrato violin, viola, and cello, with a special bonus disk of pizzicato strings. Includes 6 disks and a sound manual. Suggested retail price: \$39.95.

SL-9 Flutes Includes alto, classic, bass, folk, jazz, pan and perc flutes. Includes 5 disks and a sound manual. Suggested retail price: \$39.95.

SD-1/VFX-SD: VSD-1002 120 Sound Programs on disk created by John Greenland and Clark Salisbury. Includes Performance Presets and sound manual. Suggested retail price: \$19.95.

SQ-1 PLUS, SQ-2, SQ-R PLUS: SC-5 160 Sound Program ROM card created for Ensoniq by Charles Lanusse. Suggested retail price: \$99.95

Hacker News

New names — We'd like to welcome *Robert Romano* to our Transoniq-Net and Ensoniq infroms us that we can add *Dynatek* to the list of approved hard drives for the EPSs.

Speaking of hard drives... last month Clark announced a special offer (a chance of winning a *Hacker* tee-shirt and a free set of Ensoniq *Signature Series* sounds) to people who share their hard drive experiences with the rest of us. Well, we're starting to receive some responses and they should start to show up in next month's *Interface*. For details, see last month's *Interface*.

HEY! We're still looking for some SQ-1 & 2 and VFX & SD-1 Hackerpatches. Instant near-fame!

Oops — Scott *Leonhard* (who wrote the EPS Signature Series review in Issue #77), would kinda like it if we at least spelled his name correctly.

TRANSONIQ-NET HELP WITH QUESTIONS

All of the individuals listed below are *volunteers!* Please take that into consideration when calling. If you get a recording and leave a message, let 'em know if it's okay to call back collect (this will greatly increase your chances of getting a return call).

ALL ENSONIQ GEAR — Ensoniq Customer Service. 9:30 am to noon, 1:15 pm to 6:30 pm EST Monday to Friday. 215-647-3930.

SQ-80 QUESTIONS — Robert Romano, 607-533-7878. Any ol' time.

HARD DRIVES & DRIVE SYSTEM — Rob Feiner, Cinetunes. 914-963-5818. 11 am — 3 pm EST.

EPS/EPS-16+ QUESTIONS — Erech Swanston, Maestro Sounds. 718-465-4058. Call anytime. (NY) If message, 24-hr callback.

VFX QUESTIONS — Sam Mims, Syntaur Productions. 818-769-4395. (CA). 10 am to 11 pm PST.

SEQUENCING — Larry Church, Danlar Music, 503-692-3663. Call anytime.

SQ-80 QUESTIONS — Michael Mortilla, 805-966-7252 weekends and after 5 pm Pacific Time.

EPS & EPS-16 PLUS QUESTIONS — Garth Hjelte. Rubber Chicken Software. Pacific Time (WA). Call anytime. If message, 24-hour callback. (206) 467-5668.

ESQ-1 AND SQ-80 QUESTIONS — Tom McCaffrey. ESQUPA. 215-830-0241, before 11 pm Eastern Time.

ESQ-1 QUESTIONS — Jim Johnson, (503) 684-0942. 8 am to 5 pm Pacific Time (OR).

EPS/MIRAGE/ESQ/SQ-80 M.U.G. 24-HOUR HOTLINE — 212-465-3430. Leave name, number, address. 24-hr Callback.

SAMPLING & MOVING SAMPLES — "Mr. Wavesample" — Jack Loesch, (201) 264-3512. Eastern Time (N.J.). Call after 6:00 pm.

MIDI USERS — Eric Baragar, Canadian MIDI Users Group, (613) 392-6296 during business hours, Eastern Time (Toronto, ONT) or call MIDILINE BBS at (613) 966-6823 24 hours.

MIRAGE SAMPLING — Mark Wyar, (216) 323-1205. Eastern time zone (OH). Calls between 6 pm and 11 pm.

SQ-1 QUESTIONS — Pat Finnigan, 317-357-3225. 8:00 am to 10:00 pm EST.

ESQ-1, MIDI & COMPUTERS — Joe Slater, (404) 925-7929. Eastern time zone.

HYPERSOINQ NEW PRODUCTS

K. Thomas announces the new addition of "GROUP J: Saxophones" to the K. Thomas library of samples for EPS/16+. The 7 disk set is made up of solo soprano, alto tenor, and baritone saxes and a variety of sax sections in true stereo. Saxes may be purchased individually or as a complete 7 disk set for \$69 (+ \$4 s/h). A demo tape is available for \$4. There's also a demo tape of the complete K. Thomas library for \$12. For further information, contact: K. Thomas, PO Box 174, Stratford, Ontario, Canada N5A 6T1. Phone: 519-271-7964.

Waveboy Industries announces the *Waveboy Algorithm Series* for the EPS-16 Plus. For the first time, new effects algorithms are available for the EPS-16 Plus — the only keyboard that can load DSP software from disk. Each Waveboy disk contains a collection of effects which are not available from the EPS operating system. These effects can be added to any sound or bank, edited, and saved, just like the original 13 effects that come with the unit. (These are *not* sampled sound effects.) The entire series will include AM, FM, and waveshaping synthesis, multi-input combinations of effects, 44 kHz versions of effects, EQ, resonant filters, and other new effects. The first disk in the series is the *Parallel*

Effects Disk. These 15 algorithms are designed for sequencing applications, where different sounds need different effects. Busses 1 & 2 on the EPS are treated as four mono inputs to four parallel effects. (Any resemblance to the DP/4 is purely coincidental.) Each input and each effect is separately pannable. The effects include chorus/flanger, guitar effect chain, delay and reverb/ambience. The *Waveboy Parallel Effects Disk* is available direct for \$33. Foreign orders, add \$6, PA residents add tax. For more information, quantity pricing, requests for custom algorithm development, or to order, contact: Waveboy Industries, PO Box 233, Paoli, PA 19301, phone: 215-251-9562.

Tested and Approved Hard Drives for the EPSs

Note: The drives listed below are known to be compatible with the EPS and EPS-16 PLUS at the time of testing. Changes in firmware or hardware by drive manufacturers may make later versions incompatible (with the exception of PS Systems, Eltekon, and Frontera whose drives are configured to work specifically with Ensoniq products). Drives not included on this list may also work just fine. For up-to-date information about specific drives call Ensoniq Customer Service: 215-647-3930.

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And if you missed the two rave reviews we got here in the Hacker from Rik Hall (Q-Spectrum collection "I") and from Chris Barth (collection "II") you've probably couldn't avoid seeing quotes from them (which naturally we've used ad infinitum). But thousands of Ensoniq owners from literally around the world, took a chance anyway that for once the hype was for real and purchased our Q-Spectrum collection. They'd flip out over how much better they sounded. They'd write us long letters to thank us. Call. Beg us for even more sounds. Pledge to tell all their friends -- many who in turn became loyal Patch/Works fans.

And a lot of these fanatics have been Hacker readers (our kind of people) so we feel we owe you guys extra. So to those of you who may have always wanted to own these fly sounds but somehow never got around to it, or couldn't afford it at the time, or got our first collection (vols.1&2) but not the second (vols.3&4), check this out..

In light of the present economic situation (ugh) we can no longer afford to keep any inventory for these (albeit lovable) Ensoniq dinosaurs. So we're blowing them out once and for all with a special price for **Hacker readers only!** We're offering our **two** different 160-voice Q-Spectrum ROM cartridges at **below wholesale** cost. These are the lowest prices ever. Originally they sold for \$80 each (and people thought it a good deal). So don't miss this last chance to grab these at a bargain basement price. Once we sell out, that's it forever, so hurry.

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Foreign Music

Daniel Mandel

Tapes: Cathedral Volumes I & II
 Contact: Michael Jon Sohns, PO Box 71243, Milwaukee, WI 53211-7343

Equipment:

EPS, Casio CZ-101, Casio SK-1, Boss BX-8 Stereo Mixer. Sony SEQ-9 Equalizer, Sony TC-W320 Stereo Cassette, and Pioneer CT-F500 Stereo Deck.

[The second volume used all of the above less the SK-1, plus a Casio VZ-10M.]

This review contains another pair of cassettes both submitted by the same person. On the J-card is this musician's stated intent of purpose: Classical-style music on sampler and synthesizer. His first tape, entitled "*Cathedral*," has four pieces on it. "*Clouds and Water*," "*I Will Hunt You Down*," "*Zen Duet*," and "*Cathedral*" in four cantos. The second tape is simply labeled Second Volume and has seven pieces. "*Harpersong*," "*Steel*," "*Tao Jones*" (pronounced DOW JONES), "*Canon for Strings and Voices*," "*Something Old, New, Borrowed, Blue*," "*Gargoyle's Dance*," and "*Dragon Suite*." I wanted to include the titles of the pieces here so that you could get at least a hint of Michael's imagery in his music.

I was thinking that, from the outside, one can look at an electronic musician much the way one looks at a visual artist whose tool is a computer. For instance an artist using a computer has a range of option not available to a painter using conventional methods. Think of the choices of color alone. A computer artist can choose from a jillion colors and then blend them together. In addition there are choices of brush stroke, kind and size. You can even determine what kind of paper you will be "virtually" painting on as different kinds of paper absorb different kinds of paints differently!

The parallel for the electronic musician here is that when an artist composes a song, even with a modest home MIDI set up, there are many choices to be made. How do you begin to choose from among hundreds or thousands of sounds? When the sounds are chosen, how does the artist process them? We all know that different sounds act differently in different kinds of rooms! Then the artist has to consider that while each sound separately may sound wonderful or wimpy he's got to mix those sounds together. Finally what sounds one way on a master may sound slightly altered on a mass produced copy.

On these two tapes the genre is classical. The sounds are a mixture of modern synthesizer sounds and samples of classical in-

struments. The colors in Michael's palette range from mellow to magnificent, from tragic to triumphant. Some of them are long pieces, and have movements contained within. One of the wonderful aspects of this music is reading about what inspired each song. Many of his pieces have come from other works of art, books and music that inspired him, lighting a fire in his imagination. Listening to these tapes left me with the "feel" of a foreign film. On my usual bus ride to work I was transported to... some land with a different sensibility, a different approach. I found myself waiting for Fellini to yell, "Cut!"

Although there are many solo sections, this is not minimalistic music. Michael admits that "*Something Old, New, Borrowed, Blue*" on the first tape might sound a little Phillip Glass-ish — "some deep dark timbres that grow lighter and lighter." And then he adds, "some re-worked rock chords that sound familiar, and yet very different in this context." Silence on Michael's tape was treated with what I would call a relaxed respect. Maybe Michael's been influenced by John Cage's views on what an important part silence can play in music. Whomever influenced Michael, it was not always important to him to have the tape filled with sound.

Some of the voice choices on these solo sections bothered me. A few of them worked very well. Specifically there were a couple of "whistle" patches that were beautiful. Also the vibes, piano and the synth solo horn patches were great. There was, as far as I can tell, little if any signal processing on this tape. The ambience of the piece was dependent on any particular sound's decay (as was the case with the vibes). Many of the solo patches used were completely dry. I've heard this used as a very dramatic effect, especially when it stands out in contrast to a very "wet" environment. On Michael's tape, though, in places it detracted from the overall feel. I often wanted just a hint of reverb.

This tape is not an attempt to mimic acoustic instruments. Many of the sounds are down-and-dirty AM and analog sounds. It is not a wide and varied mixture, with probably no more than 20 to 50 sounds total used. Some of the strings are biting and realistic while others are nasal and layered.

The second volume begins with a harpsichord and a synthetic bass. As the piece progresses, a rather snappy snare and percussion beat kicks in. This is one of the quirkiest moments on both tapes. Moods change very quickly on some of these pieces. It's this progression, this change of feeling that comes with it, that is often the basis of the response.

The last song on the first side of the second volume is especially beautiful and fascinating, the kind of music I get caught up

in. The synthetic voices take on a human aspect as they begin to sing out what was barely discernible in the introduction. It is called "Canon for Strings and Voices."

In his accompanying letter, Michael writes, "I've sent out demo tapes to publishers and record companies. Maybe my demos are too long but I don't know how to present my songs except in their entirety (as I hear them, at least.)" To Michael I'd say the following. First, if you're sending the entire work it's no longer a demo tape. What's your goal in sending out these tapes? Are you looking for a record deal? Would you be interested in having your music performed by a group? Are there other avenues, such as student films or commercial work, where your music can be combined with others' visual arts? Are there radio stations, University or public, that may consider airing your tapes? There may already be avenues for your music. I know that while I was there the students at the University of Minnesota were pushing for more student written pieces to be in-

cluded in their concerts. Maybe in your area you can find some support and interest.

Thanks for the great music! ■

If you want your tape run through the ringer, err, Hacker, just mail it off to: Basement Tapes, *Transoniq Hacker*, 1402 SW Upland Dr., Portland OR 97221.



Bio: Daniel Mandel is a songwriter, sound designer, and has sold pro audio and keyboard equipment and produced demo tapes for local bands.

Wave Mutilation 101

Backwards Masking

Ever since the beginning of sound synthesis, people have had a higher dream of a machine that could do even more. In fact, my "ideal" machine would be a cross of the EPS-16 PLUS, WS A/D, and JD-800. However, until this monster comes along, I am quite content with my SQ-80 and SQ-R.

Having said that, let's begin.

For a while now I've been quite interested in the backward wave function. After realizing that really terrific analog-like sounds could be manufactured by simply reversing the direction of a brass wave for the attack and adding the classic saw wave or transwave, I wondered how could I possibly use this concept to create something so incredibly obnoxious that people would either be blown away at the imagination involved or doubt my sanity.

The answer was finally revealed in a somewhat basic idea: Take the most obviously explosive waves, reverse them and emphasize their backwardness. At this point, my choices were pretty obvious: BIG BLAST, ORCHESTRA HIT, and POT LID HIT. My intention was to align the waves in such a way that they would all end at once after the key-down. Theoretically, this would make a sound-ramp, so to speak, by building up from the end of the waves and eventually climax at the beginning. As I found out later, however, there's a major factor involved that throws the theory almost out the window: the actual lengths of the waves involved are NOT equal. But since they were the most distinct, these waves were definitely prime choice.

To make up for the difference while increasing the emphasis, I also had the filter and chorus open up over time as well as the Amp. Modulating the chorus rate by timbre seems to bring about just the right effect. To enhance the climax I had the Amp cut off all of the waves at the same time on a single key. Because I was using time as a crucial factor, I had to shut the keyboard Pitch Tracking off (since the Amp cutoff for each key would be different).

That's basically why I did what I did. Although it's not really the kind of patch you would use in all of your songs, it does its duty in providing a model for creative applications in backward masking your waves. How? I'm glad I asked myself just that question for you. The key is subtlety. If you think in terms of Cross-wave synthesis, it becomes even more practical to simply attack the reversed brass wave to another wave by fading the waveform in while fading the backward wave out. This opens up many more options in sound creation possibilities. BUILD UP is just a more extreme example, but it reveals that the practical potential for using backward waves does, in fact, exist.

So whether you're trying to create some fun sounds for a song like "Dangerous" or just amuse your friends, we at Wave Mutilation 101 aim to please! ■

Bio: Jack is currently a Psychology major at Eastern Nazarene College in Quincy, MA and thoroughly enjoys mutilating his waveforms.

SQ-1 & 2 Prog: Build Up

By: Jack Stephen Tolin

WAVE	1	2	3
Select Voice	On	On	On
Wave Class	Percussion	TunedPerc	TunedPerc
Wave	BigBlast	OrchHlt	PotLidHlt
Delay Time	000	000	000
Wave Direction	Backwd	Backwd	Backwd
Start Index	00	00	00
MODSCR	Off	Off	Off
MODAMT	-	-	-
Restrk Decay	99	99	99

PITCH	1	2	3
Octave	+0	+0	-2
Semitone	-9	-6	+0
Fine	+0	+0	+0
ENV1	-	-	-
LFO	-	-	-
MODSCR	Off	Off	Off
MODAMT	-	-	-
KBD Pch Track	Off	Off	Off
Glide	Off	Off	Off
Glide Time	-	-	-

ENV1	1	2	3
Initial	99	99	99
Peak	99	99	99
Break	65	65	65
Sustain	0	1	0
Attack	0	0	50
Decay 1	20	10	50
Decay 2	99	69	99
Release	0	19	50
Vel-Level	0	0	0
Vel-Attack	0	0	0
Vel Curve	-	-	-
Mode	Finish	Finish	Finish
KBD Track	0	0	0

LFO	1	2	3
LFO Speed			
Noise Rate			
Level			
Delay			
MODSRC			
Wave			
Restart			

FILTER	1	2	3
Filter 1	2Lo	2Lo	2Lo
Filter 2	2Hi	2Hi	2Hi
FC1 Cutoff	28	28	28
ENV 2	+99	+99	+99
FC1 KBD	+0	+0	+0
MODSCR	Timbre	Timbre	Timbre
MODAMT	+99	+99	+99
FC2 Cutoff	99	99	99
ENV2	-99	-99	-99
FC2 KBD	+0	+0	+0
FC1MOD-FC2	Off	Off	Off

ENV2	1	2	3
Initial	99	99	99
Peak	99	99	99
Break	65	65	65
Sustain	0	1	0
Attack	0	0	50
Decay 1	20	10	50
Decay 2	99	69	99
Release	0	19	50
Vel-Level	0	0	0
Vel-Attack	0	0	0
Vel Curve	-	-	-
Mode	Finish	Finish	Finish
KBD Track	0	0	0

AMP	1	2	3
Initial	24	24	24
Peak	49	49	49
Break	99	99	99
Sustain	00	00	00
Attack	00	00	00
Decay 1	43	43	43
Decay 2	00	00	00
Release	00	00	00
Vel-Level	00	00	00
Vel-Attack	00	00	00
Vel Curve	-	-	-
Mode	Finish	Finish	Finish
KBD Track	+0	+0	+0

OUTPUT	1	2	3
VOL	99	99	99
Boost	On	On	On
MODSRC	Off	Off	Off
MODAMT	-	-	-
KBD Scale	0	0	0
Key Range	A0 C8	A0 C8	A0 C8
Output Bus	FX1	FX1	FX1
Priority	Medium	Medium	Medium
Pan	0	0	0
Vel window	0	0	0

Effects Programming

8-VOICE CHORUS	
FX-1	50
FX-2	50
Chorus Rate	0
Chorus Depth	99
Chorus Center	0
Feedback	0
MOD (Dest)	Rate
BY (MODSRC)	Timbre
MODAMT	+99



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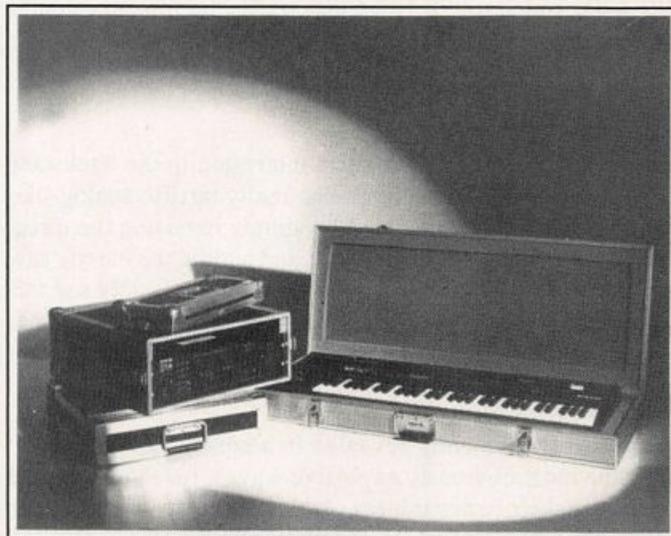
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And Now For Something a Little Different...

Free Stuff (sorta)

Daniel Mandel

Product: 60 voice patches plus 20 presets.

For: VFX, VFX-sd and SD-1.

From: Dr. Brad Kaufman, 11-26 Saddle River Rd, Fair Lawn, NJ 07410.

Price: Offered as trade for original VFX programs, no tweaks, copy-righted sounds, etc.

It's not often opportunities like this arise. What we have here, for you recession weary musicians, is a deal. Dr. Brad has cranked out an EEPROM of 60 sounds available for trading. Programming, for him, is obviously a labor of love, and he's been painstakingly thorough in creating some very playable patches. Being a programmer is a glory-less job. The better a sound is made, the less we think about the programmer and the more we focus on what a wonderful piece of hardware we have in front of us. and having said that, let's step into Dr. Brad's world of programming and see what he has for us...

Electric Keyboards and Pianos

Some of these approach the exhalted Rhodes, each one evoking its own mood and they all sound wonderful across the range of the entire keyboard. TREMOLO PNO is a very inspiring sound that could be used for solo work or with simple, minimal instrumentation. FLANGED PNO, however interesting sounding, struck me as a bit odd although for the right piece it might be just the right touch. I had a problem with the name on CLAVI-ROADS — I mean I've heard a few Rhodes pianos and while this does sound a bit like a Rhodes, it doesn't sound like a Clavinet-anything. The point is that while the name seems wrong, the patch is great! Dr. Brad includes an interesting note about SINGIN.PNO, "...patch select buttons give three different percussive variations including FM tine, dripping water, and breaking glass (with pitch adjustable by pressure)." A lot of careful planning has gone into these patches, and yet he also writes that most of the sounds started out as pure accident, "and then I tweaked and tweaked and tweaked until it sounded right."

Brass and Woodwinds

CLARINET 1 is realistic enough and would work fine in a mix with other instruments. MLO TRUMBA is a great horn sound. Had to bend notes on this one to get that trombone slide, and there was where I found one of the few problems in this set. When I adjusted the mod wheel in the upper octaves this sound gets a bit noisy.

Organs and Vibes and one cranky Sound Effect

The organs are *all* very wonderful. Dr. Brad says, "Organ sounds have good low-end frequency response and roto-speaker

effect is usually activated by pressure." This makes for a wonderful sense of control and expression. My favorite among the organ sounds is called COMBO*ORGAN. It was exceptionally full and powerful without being overbearing. Sounds like I'm describing wine! And then we're given three different vibes which are wonderfully simple and pure. The one sound-effect is the MA BELL pair of patches. Put them together and you can actually dial a phone with it! Try it with a VFX-sd, however, and this patch somehow makes your system crash! It worked. My system crashed. The patch does work fine on the plain vanilla VFX and SD-1, according to the programmer.

All along the way Dr. Brad has gone out of his way to really make each patch work. The patch select buttons actually make interesting changes. About his own collection Dr. Brad says, "There are 59 high-cholesterol sounds (some of them even repeat on me!), 1 sound effect, and 20 presets. No soundtrack or B-Movie background effects are included in this set, and there is no filler. Incredible gobs of time were expended programming the sounds, modulation and effects. Without a doubt, I can say that no other programmer has turned out so many sounds this slowly!"

The patch presets that Dr. Brad includes help to show off the sounds he's produced. The organ preset only improves the already great organ sounds he started out with. The VIBES preset uses one of the patch selects that allows just a shimmer of a background string section through to delicately shadow each note. I could play that preset all day long. One preset uses a patch called GOODOLDAYS* three different ways — a good example of how much thought went into each sound. Some of the presets seemed too intense to be very expressive.

I received Dr. Brad's collection the same day I got my UPS package of two commercial sound sets. How do they compare? Dr. Brad's collection is meat and potatoes. The sounds are all sounds we know and love and *use!* Filler? Did someone mention filler? If I threw away all of the filler sounds on one of the collections I bought, it would be empty! Dr. Brad is interested in reinforcing the supply of staple instruments, the basics, and doing it well.

This set is worth trading up for — and remember if you're interested in getting started with programming one good way to start is by taking apart a few good examples. Find a sound that you love and see what makes it do what it does!

Dr. Brad is interested in trading his sounds for your sounds. So contact the Doctor, set up a fair trade and show him some of your medicine! ■

Build a Control Voltage Interface/Selector for the EPS

Charles R. Fischer

Intro

Back in my article, "Much More than a Volume Pedal" (July '91), I discussed ways of using the CV/pedal jack on most Ensoniq instruments with external control voltage sources. Thanks to a few cards and letters from a few interested readers, I'm gonna discuss some more intriguing uses of this feature and suggest a few do-it-yourself construction projects.

In this installment, I'll present a very simple electronic circuit that is designed for use with the original EPS sampler. Due to its design, the EPS requires a negative-going control voltage — unlike the remainder of Ensoniq instruments (and 98% of music synthesizers ever made).

The circuit described in this article allows you to use the typical positive-going control voltage with your EPS; it also allows you to switch between a regular footpedal, and the CV input, without having to repatch things. Best of all, this circuit is so simple and cheap, that almost anyone should be able to wire it up without much trouble!

How It Works

ACHTUNG! While every reasonable effort has been made to verify the accuracy of this article, neither the author, or this magazine will be held responsible for any damages that result

by the actions of readers. This project should not be attempted by persons lacking basic electronics skills. An excellent book for the uninitiated is fellow Hacker, Craig Anderton's, "Electronic Projects for Musicians" (available from the Mix Bookshelf, 6400 Hollis St., #12, Emeryville, CA 94608).

The schematic diagram of the interface circuit is illustrated in Fig. 1. Incoming 0-to- +10V control voltages are connected to J1. R1, R2, and IC1 form the heart of our circuit, which is known in the electronics world as an "inverting amplifier."

As the name implies, the inverting amp has the interesting talent of producing output signals that are 180 degrees out of phase with the input signal — negative input voltages become positive output voltages, and vice versa. This is exactly what we need to convert positive control voltages into something that your EPS can use.

In order to do its job, IC1 needs a regulated bipolar power supply that can furnish + and - 12 to 15 Volts at 100 mA. Because this circuit handles both positive and negative voltages at its inputs and outputs, we need to have a power supply that can provide both positive and negative voltages. I do not recommend using batteries for this application, as they have the nasty tendency to drift with age (which affects the circuit's accuracy), and they have a knack for going dead — usually just before an important gig. Spend a few bucks more for a decent power supply, and you won't be sorry. C1 and C2 are provided to filter out any transients or noise on the power supply lines; this helps to keep them from showing up in the output signal.

By adding switch S1 and an extra phone jack, we can switch between the control voltage, or the footpedal. The pedal plugs into J2, and the interface is connected to the EPS via J3. S1 is used to connect either the CV output, or the footpedal, to J3.

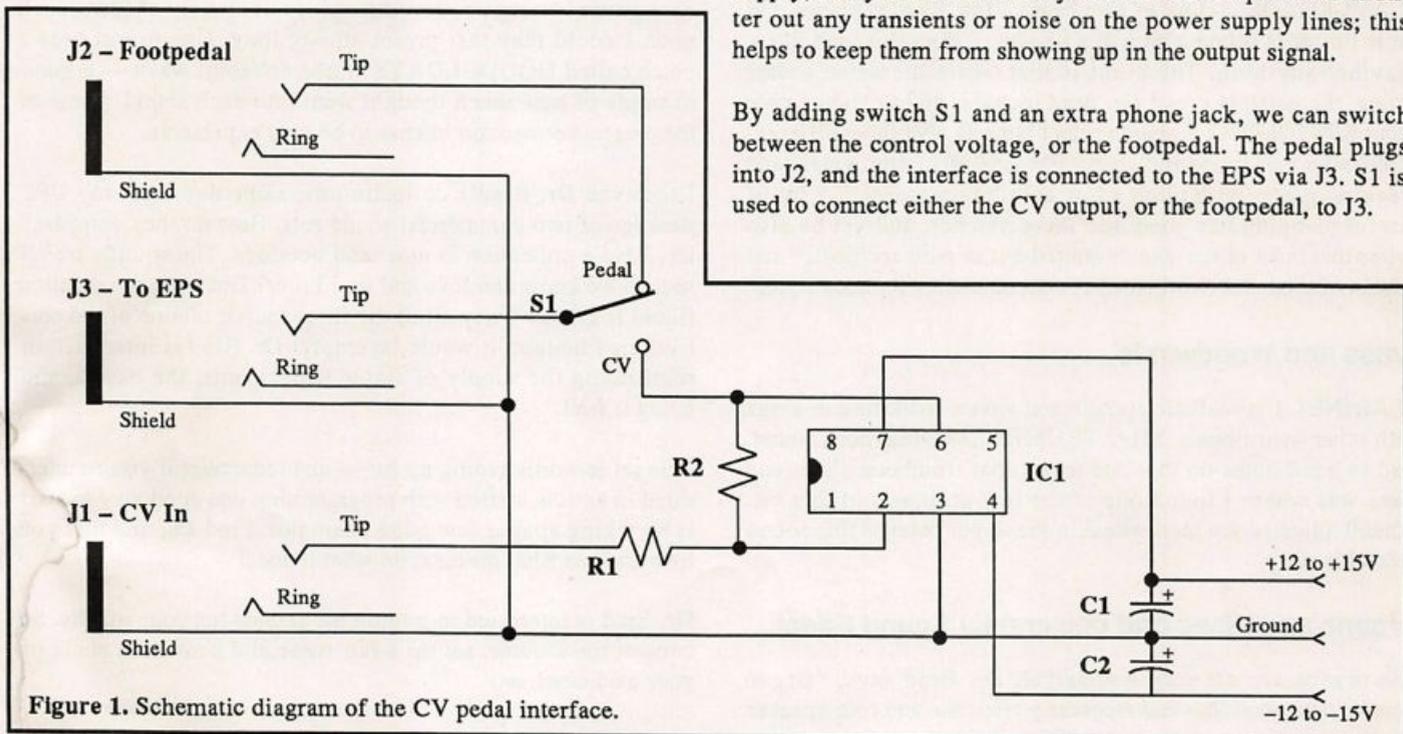


Figure 1. Schematic diagram of the CV pedal interface.

Building Hints

Due to the simplicity of this project, it should be no problem to put together. You can use a perfboard or one of the prototype circuit boards sold at Radio Shack stores, or even etch and drill your own printed circuit board if you're truly hardcore.

The interface and its power supply should be mounted into an appropriate case; I recommend using a single-height rack mount chassis. While this is more expensive than other alternatives, it's sturdy enough for professional use, and it has plenty of leftover room for other projects. A suggested layout for the front and back panels is shown in Fig. 2.

A good source of inexpensive rack chassis is PAIA Electronics (3200 Teakwood Lane, Edmond, OK 73013). They sell the RCE1, a single-height chassis, for \$19.95 and \$2.00 P&H. In addition, they also sell black rack panels and both 12 and 15 Volt bipolar power supply kits. To get a catalog, you can call 'em at (405) 340-6300.

Testing and Troubleshooting

Once everything has been wired up, take a few minutes to inspect your handiwork. Make sure that there are no obvious problems like cold solder joints, or missing insulation on wires, and that polarized components (like the IC, C1, and C2) are oriented correctly. Everything look OK?

Before we hook up the interface to your EPS, turn on the power and make sure that it doesn't smoke or catch fire. If you have access to a voltmeter, check the power supplies to make sure that they are operating.

Finally, hook up a control voltage source to J1, a footpedal to J2, and connect J3 to the EPS CV jack with a stereo guitar cord. Assign the EPS pedal to volume, and verify that the EPS responds to both control voltage and footpedal operation. Once

that you know that everything is working, you can move on to experimenting with different control voltages with the EPS.

Help Us Decide. . .

We'd like to invite your suggestions for other control voltage projects in this series. Two ideas that I had in mind were a breath controller interface, and an envelope follower. If you have any ideas for other projects — or have a specific feature that you'd like to see implemented in a project — please drop me a line:

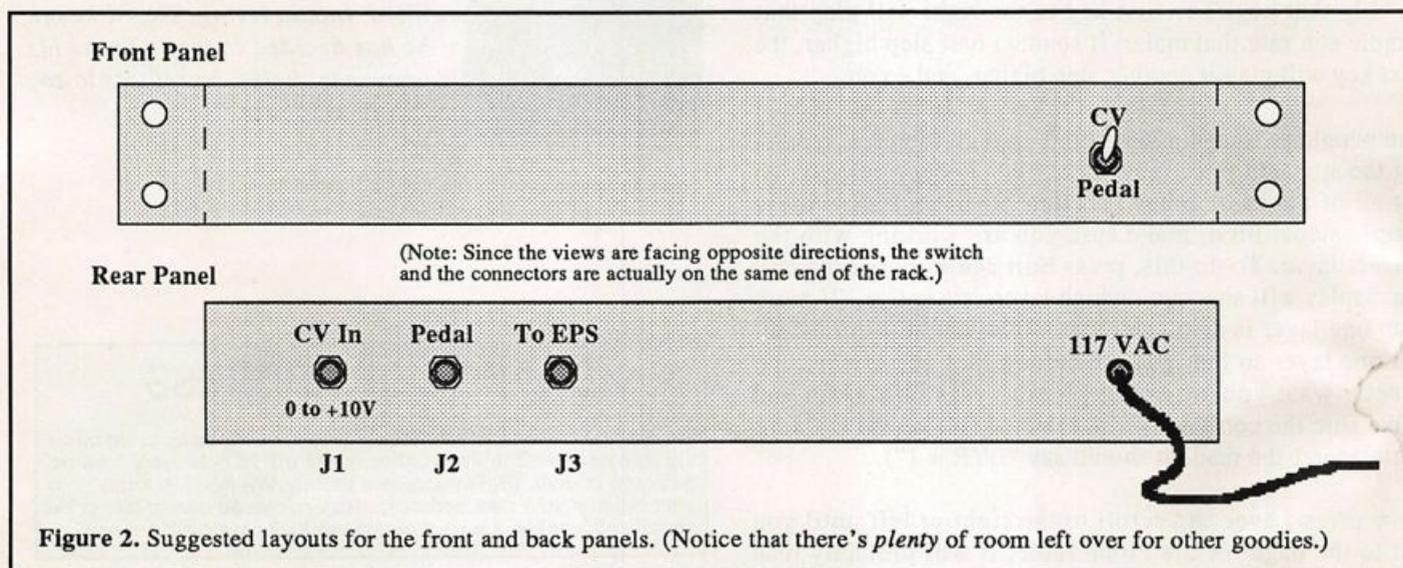
Charles R. Fischer
P. O. Box 5372, Hercules, CA 94547

Please remember to include a SASE if you want me to reply; thanks in advance for writing. Finally, I'd like to thank my friend (and *Electronic Musician* Managing Editor) Steve Openheimer, for the use of his EPS.

Parts List For The EPS CV Interface

IC1: 741, TL 071, or TL 081 generic op amp
R1, 2: 100k (100,000) Ohms @ 1/4 Watt
C1, 2: 1 uF (1 microFarad) @ 25V (or greater), electrolytic or tantalum capacitors
J1, 2, 3: Stereo 1/4" phone jacks
S1: single-pole, double-throw (SPDT) toggle or slide switch

Bio.: Charles R. Fischer is a well-known author, musician, synthesizer programmer, and electronics designer. He's hoping to find a day job as an electronic technician pretty soon as he's getting married next April, and he will have to be paying a few expenses.



Pitch Tables and Percussion Redux

Bryce Inman

In *Transoniq Hacker* Issue #67, an article which I had written titled "Pitch Tables and Percussion" appeared. (Actually, it didn't just appear — the editor put it in there. She can do some pretty incredible things, but she can't just make things appear.) The premise of that article was this: I wanted to make several keys on my EPS play exactly the same pitch so that I could play percussion rolls, flams, etc. by simply rolling my fingers across several keys. To do this I created a pitch table in which several keys played a sample at the same rate. For example, I set up a pitch table where C2=C2, D2=C2, E2=C2, etc.

Shortly after that issue of the *Hacker* hit the stands, Garth Hjelte, a fellow *Hacker* writer and the mastermind behind Rubber Chicken Software (and whom some believe to be Elvis's evil twin) called me up and said, "Wow! That was absolutely the most exquisite article I have ever read. You are truly the king of all writers. Surely you will be granted knighthood one day!"

Actually, what he *really* said was that, while he had found the article informative, there was a simpler way to accomplish my goal of making all of the keys play back a sample at the same rate. Unwittingly, he went on to give me the idea for a second article on Pitch Tables.

If you don't tell it to do something differently, the EPS automatically plays the samples it has loaded with a standard pitch table. What this means is that, after you tell the EPS which is the root key for a particular sample, it will play the sample at unity (the rate at which it was recorded) on only that key. The first key to the right will play that sample at a rate that makes it sound a half step higher, the next key will play it another step higher, and so on.

The people at Ensoniq were kind enough to make bypassing the standard pitch table an extremely easy process. To get all of the keys to have no transposition, follow these simple steps: First, make sure you are working with the correct layer. To do this, press Edit and then Instrument; the display will show you which layers are active. (If more than one layer is displayed you might want to turn off all but one layer so that you are certain that you are hearing exactly what you are doing.) Next, press Edit again and make sure the correct layer is selected (if you are working with layer 1 the readout should say "LYR = 1").

Now press Layer and scroll to the right or left until you get to the page for the Pitch Table. It will probably read

something like PITCH TBL = STANDARD. (STANDARD is the pitch table you would normally use for melodic instruments such as the piano.) Next, scroll up or down until the display reads PITCH TBL = NO PITCH and that's it! Play a few keys and you will find that every key plays the sample assigned to it at exactly the same rate. Wasn't that easy? Who says keyboard programming has to be difficult?

Of course, this method is only useful if you want every key to play exactly the same rate. If you want an octave or two of pitched toms, for example, you might want to refer back to my first article which explains the simple steps for mapping out the entire keyboard in any configuration you desire.

Since each of the EPS's eight layers can have its own pitch table, another alternative is to assign pitched percussion to one layer and non-pitched percussion to another. In this case, select STANDARD PITCH for the layer with pitched percussion and NO PITCH for the layer of non-pitched percussion.



Thanks for the tip Garth, but I'm not sharing the check for this article unless you send me a free hard drive! ■

Bio: Bryce Inman is a free-lance music editor and arranger for Word, Inc. in Irving, TX. Although he has decided to make Texas his permanent home, he refuses to say "y'all" or "fixin'."

CHANGE OF ADDRESS

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Is Your Hard Drive Giving You a Hard Time?

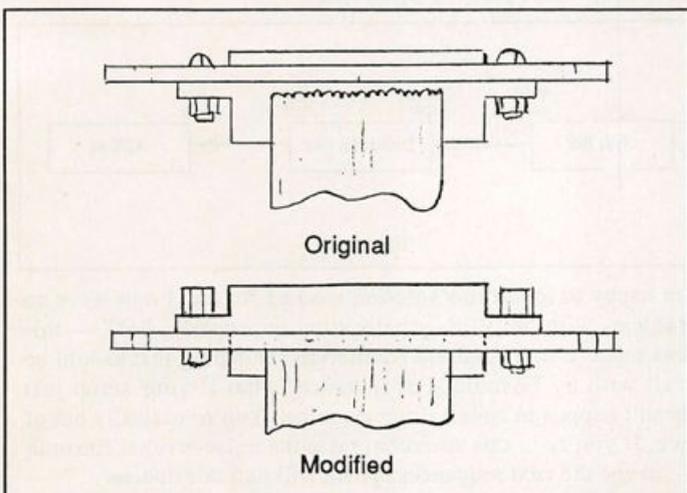
Dave P. Worth

After purchasing my EPS, it took me about 15 minutes to realize the need for a memory expansion. The next day I started to shop around the mail order dealers, soon finding that if I ever was to get a SCSI interface, it would have to be compatible with the memory (the same manufacturer). So by day 3 I was in the market for both, even though I didn't yet see the need for a hard drive. Being a computer systems design engineer, I analyzed the market and picked the cheapest. (They all work the same don't they?) Well, the first one I received didn't, but the company was very helpful and sent another the next day, which has been fine ever since.

Not being near an Ensoniq dealer, I fitted the unit myself which was very quick and easy and didn't even cost me my warranty — I'd lost that by taking the thing to bits to poke around the day after I bought it.

The extra memory was a great help, but it does make loading slow and storing banks tedious when you need 3 disks to dump it onto, so I took the plunge and started hunting down a hard drive. Guess what? The same company won again on price. When the drive arrived, I started on a new adventure resulting in a few tips which may be of interest to any new hard drive owner.

1. The SCSI plug usually comes fitted with locking screws to avoid accidental removal whilst the unit is powered up, which could result in all sorts of electronic nasties. But the studs to receive these screws are not fitted to the EPS, as the rear panel carrying the SCSI connector is too thick to allow their fitting and still have the connector properly seated. Solution: Remove the connector and panel and file 1/8" out of the hole to allow the connector to be fitted to the outside face. Then fit your "Radio Shack" retaining studs and refit the panel and connector. The plug can now be fixed in place with no fear of problems.



2. The hard drive was working and I could store and retrieve data, but it refused to boot from the hard drive. I soon found that the EPS will not recognize drive "zero" as a boot device; setting it to "one" did the trick.

3. After using the unit for a couple of hours, it started to produce garbage. This was no reflection on my playing skills but was a fault. I rebooted the unit and it failed to tune the keyboard. This repeated several times. After the unit had been left powered down for a while, it recovered, only to fail again in the same manner a few hours later. The problem had to be power supply drift due to the extra loading or overheating.

To cut a long story short, the problem was a ground loop through the disk drive via the SCSI to the keyboard. Solution: Remove the ground pin from the disk drive supply plug and let it ground through the SCSI. I have also seen this same problem on an ESQ with a floppy drive on the MIDI port. Even though the MIDI is optically coupled to avoid ground loops, they still connect the shield on both ends of the cable.

A common symptom which will let you know if you are suffering a ground loop problem is "noise on the audio outputs" when loading from and saving to disk. To be sure, try powering up the EPS with the hard drive connected but not plugged into the supply. Turn up the volume and listen if there is a significant increase in noise as you plug in the drive (still with the drive turned off). If there is, you have probably found the problem. The best solution is to isolate the drive case from the drive while leaving the case grounded to the supply and the drive grounded through the SCSI interface. A simpler solution is to remove the ground pin from the drive supply plug, which probably breaks all of the federal regulations but what the heck, I'm British.

4. If you constantly write and erase data on your drive, you can end up with the disk "fragmented"; don't panic. This refers to the state in which the data is stored and can be rectified by a back-up and reload of the drive (a tedious task if you don't have a tape streamer). The fragmentation causes the disk access time to be greatly increased. The way to avoid this is not to keep erasing data, which is no problem on sound samples but is normal when writing songs. Here is a good way to overcome this and to make the best use of your sound banks.

When you have put together a group of sounds and put down your song, the next thing to do is to save it. Before you rush off and save the song in your "songs directory" on the hard drive, try changing the storage device back to the good old floppy and save the song there. Next go back to the bank directory on the hard drive and save the sound bank. What's so good about keeping songs on a floppy, you may ask. Well, not only does it get rid of the disk fragmentation problem, but your sound bank

is no longer dedicated to one sound. It is now a "band" or orchestra, depending on the type of music you play. When you load that sound bank and answer "YES" to "LOAD SONG TOO?", the EPS will go off and load the bank and the song that happens to be on the disk in the floppy drive, whatever its title is, so you can use the same "band" for various songs.

The EPS will also pick the right directory on the floppy. So if you create various directories with the same set of names on a few floppies, you can keep a song for each "band" on each floppy in the appropriate directory thus allowing you to store lots of songs on each floppy but of course, only one for each "band."

5. Where do you put a hard drive when you only have an SCSI cable one foot long? Answer: Under the keyboard. Go to your local office supplier and purchase an under-swung, ventilated, hard drive support bracket c/w with cable entries. This is otherwise known as a wire frame desk "In Tray." Drop in your drive and hang it on your keyboard stand with a couple of suspension file supports (with the ends bent over to stop it from sliding off) and then put your keyboard back on the stand. I even sprayed the file supports black, but then, I'm an engineer. ■

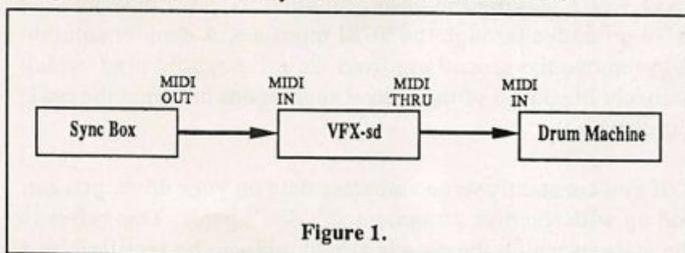
Address: Dave P. Worth, Senior Systems Design Engineer, c/o Davy McKee (Sheffield) Ltd., Automation Division, Prince of Wales Road, Sheffield S9 4EX, England.

The Trials and Tribulations of Using the VFX-sd With a Sync Box

Michael Mooney

When Ensoniq released its latest sequencer update for the VFX-sd (Ver. 2.10), part of the update was supposed to correct the VFX sequencer's unreliable relocating when slaved to an external clock, i.e., a sync box, drum machine or external sequencer — any configuration in which the VFX sequencer clock is set to EXT and must read song position pointer data from an external source. While the 2.10 update does seem to improve the VFX sequencer's reliability when slaved to a drum machine or external sequencer, it definitely leaves something to be desired when it comes to dealing with sync boxes.

In Figure 1 we see what would be the typical configuration when using the VFX-sd with a sync box and drum machine.



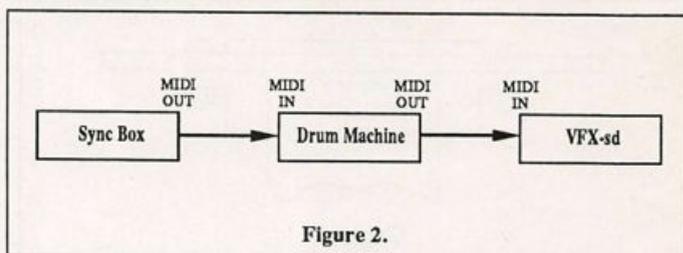
The sync box is the master clock that's sent first to the VFX-sd then through to the drum machine. Now in a perfect world, both the VFX-sd and the drum machine should always relocate accurately to the same spot when fed S.P.P. data from the sync box. Unfortunately, this is not the case. It seems that when relocating short distances of approximately 10 to 15 bars, the VFX sequencer will accurately lock on with the drum machine. But when dealing with any distance longer than 15 bars the VFX sequencer relocates incorrectly. Meanwhile, the \$400 drum machine manages to *always* relocate perfectly, no matter how long the distance.

After a rather long discussion with Ensoniq's Customer Service Department, they provided me with a couple of possible solutions.

The first thing to check is whether or not your sync box has a switch that regulates the speed of its data transmission. Apparently, some sync boxes like the J. L. Cooper PPS-1 have such a switch. If it does, it should be set to the slower of the two speeds. I'm told this will allow the VFX sequencer the necessary time to read the S.P.P. data and relocate more reliably.

If, like me, your sync box doesn't have this switch and you're working with roughly the same configuration as shown in Figure 1, then it's time to do some repatching.

Basically, it's a fairly simple procedure. Just repatch the configuration by placing the drum machine between the sync box and the VFX-sd. What this does is force the drum machine to read the S.P.P. data from the sync box and the the VFX sequencer is synced to the drum machine. It's important that you hook the MIDI IN of the VFX to the MIDI OUT of the drum machine and not to the MIDI THROUGH which will basically put you back into Figure 1. Also, if the drum machine's MIDI OUT has a "soft thru," make sure it's set to OFF.



I'm happy to report this solution worked for me. I now have no problems with the VFX-sd relocating improperly. BUT — this does seem to be a band-aid solution to something that should be dealt with by Ensoniq. For instance, what if your setup just doesn't happen to have a drum machine? You're basically out of luck. If you're in this situation, raise the noise level at Ensoniq — maybe the next sequencer update will nail this one. ■

Who Knows What Waveforms Lurk in the Heart of an SQ-80?

Syntaur Knows!

Michael Mortilla

Product: Soundset 4.
For: SQ-80.
Price: \$17.95 US.
From: Syntaur Productions, 11116 Aqua Vista #2, North Hollywood, CA 91602 (818) 769-4315.

Just when you thought it was safe to open the *Hacker* again, out pops another review by that mean, awful, terrible ogre, Mortilla. Well this time I'm really on the warpath! It seems I've ruffled a few feathers with my previous rantings in this mag, and I'm here to put another vendor's product through the proverbial ringer! But this time there's a twist. This time I'm going to write the review, then give a peek to the vendor, let him defend himself and answer some questions, and then you get to see it.

Now if this weren't enough, the guy who created these sounds is none other than our own Hackerpatcher Sam Mims! And, to top it all off, he and I met in person to discuss this over lunch! He was close enough to wallop me into Moogatory (and on Sunset Blvd., nobody would have noticed or cared!). But we'll get to all that later. Let's hit the sounds.

Soundset 4 is a bank of 40 patches for the SQ-80 series. But this is no ordinary bank of sounds. Sam has found a way to access "hidden waveforms" in the SQ-80 by manipulating the operating system. More specifically, waves 128 to 202! Six of the 40 patches use these waves, so they'll be first.

SPACBL is sort of a cross between a glass harmonica and mellow church organ, with a nice smooth sustain. The mod pedal adds enharmonics in the high end. Wave 192 has a pristine bell like quality which kicks in at high velocity, and this is precisely how WNDCHM creates... well, a wind chime! Again in GHSTBL, wave 192 is used, but this time the mod wheel drops the filter for a wide sweep. I also assigned the wheel to modulate all the oscillators by -03 for a little spookier effect.

Wave 163 is used for the "glass tines" effect in NEWEP and to a very pleasant end, indeed. ORBITS uses wave 153 for a metallic sound, where the pedal closes down the filter somewhat. Again, I preferred a more radical effect, so I modulated the filter with the pedal by -63 instead of the original -39. But this is purely a personal preference. Finally, the last hidden wave (great title for something) is found in ITS 4U, where wave 192 recreates the sound of a phone ringing.

Now the effect of these hidden waves is subtle, but important. Sort of like the effect Caesar's mother had on the fall of the Roman Empire. I don't think she had anything directly to do

with it, but if it weren't for her, we might all be speaking Latin today. In general, what these hidden waves add is a sort of "sheen" to the sounds, making them sparkle a little more than you might expect from an SQ-80. I did notice some digital noise occasionally, but I've come to accept that as part of the SQ-80 sound. When the filter is closed down, the noise disappears, but so does the sheen, so we need to trade off just a little. Fortunately, Sam has incorporated filter cuts into the pedal and mod wheel, and this helps alleviate the unwanted noise at precisely the right time but without sacrificing the sparkle.

While we are on the subject of pedals and mod wheels, it is important to note that in these patches, Sam has taken great care in programming different effects for those devices. You could, as the extensive program notes suggest, tweak the patch if you don't have a mod wheel. But not only will you be losing out on a tremendously expressive modulation source, you'll lose some of the flexibility programmed into the sounds.

For example, in IONBEL, Sam has created a haunting bell sound. In this patch, the wheel sweeps the filter while the pedal assists LFO 1 in panning the sound. You could do both with the wheel, but then you always have to do both. You might want to do a sweep and save the panning effect for the end of the song. No pedal? No dice! I strongly recommend using the pedal at least to audition these sounds. Frankly, I need the pedal more for volume control in a live performance, but it is a very expressive controller, as Sam has demonstrated in this bank. By the way, try the beginning of "*Lucy in the Sky with Diamonds*" with IONBEL.

Okay, so here we are, over 750 words into the review and I've covered just seven sounds! So let's go... CIANI is yet another bell sound but this time the pedal adds a kind of hummingbird twitter. Very cool. SQZ-ME is calliope like, that is until you add some controllers! Pressure adds a filter sweep, the mod wheel adds a twitter and the pedal removes the breath wave. Play a C major triad at C3, apply pressure to the chord. Then, apply the wheel and the pedal and when they are at full, release the chord. It goes sailing off into digital heaven! My tweak on this on was to set pan to 0 and have it modulated by pressure at +63. The result is an additional stereo sweep when you initially press down, but then a return to the original speaker when you release the chord. I haven't had this much fun with my SQ-80 since that time with the hot fudge... (never mind).

RESBEL is a reedy, resonant bell sound with more digital hummingbirds hidden under the mod wheel, vibrato under the pedal and a fun panning effect supplied by LFO 3. MALVOX (Latin for bad voice? Thanks, Mom!) is anything but bad. A mallet at-

tack and a breathy sustain is the basis for this sound, but push the pedal to the floor and the mallet glides up a fifth. Shove the mod wheel and the mallet disappears, leaving you with one of the softest "airy" voices I've ever heard from a synth. Very reminiscent of the new age music coming out of Ireland these days. Add to this the panning effects of an LFO (which Sam has done) and this is a big winner.

MTLBEL is a bright bell and mallet sound. This time, the pedal raises the pitch of the mallet a fifth, the wheel magnifies the panning and pressure adds a subtle yet expressive vibrato. Another pleasing sound, I must be slipping...

TEMPLE is a very unique combination of bell, organ and voice, where the wheel takes out all but the bell. To build a little drama into a score, you might start with the wheel full on and little by little, drop it back to add the other voices. Three layers of voices in one patch? This is what the SQ-80 was meant for!

TOKYO pulls similar tricks. A mallet attack with a pad sustained by the breath and triangle waves. LFO 1 modulates panning to add open space to the sound, pressure adds some vibrato, the pedal drops the mallet by an octave and the wheel removes the breathy quality. All the potential for expressive programming on the SQ-80 realized in a single patch. Practically a substitute for the patch select buttons on the EPS, VFX, ETC! There is not much more you could ask for.

Well, I still haven't found a dog in the bank. And the fact is, I couldn't (and believe me, I tried). At this point, between what I've reviewed, bought, programmed and swapped, I have many thousands of sounds for the SQ-80 and Sam's are by far the best I've seen. Ever! It has renewed my belief that the SQ-80 is capable of remarkable things. I always suspected that someday, someone would be able to rejuvenate this creature and who better than Sam Mims, Mr. Tweak himself!

There are plenty more sounds on this disk and they all shine. Every one is musically useful in an array of settings, without the mindless duplication of "stock" type sounds which clutter the public domain and the shelves of so many studios. Add to this the extensive program notes and the low price and it would be a mystery why anyone who uses the SQ-80 would not just go ahead and order it.

Now the moment you've been waiting for. I met with Sam and let him read the review. Granted, there is not much for him to defend, but there are a few things I want to ask him, so here goes:

MM: Sam, many of the sounds on this disk seem new age in style. Did you program them that way intentionally, or is this simply your preference in musical style?

SM: *A little of both. I felt that the SQ-80 had the potential to emulate the sounds found in the M1 and D-50 synths, but programmers were not taking advantage of this potential.*

MM: A lot of time and thought has obviously gone into the creation of these sounds. Did you have the sounds in your head or did you "stumble" upon them? Along these same lines, how did you decide which controllers were to do what? Is it the result of your performing experience, your own needs, or was it a fairly arbitrary decision?

SM: *A few of the sounds were stumbled on, but most were the result of trying to capture a particular type of sound. As far as the choice of controllers goes, I tried to keep the most used effects in the mod wheel since most people have at least that controller. I gave the CV pedal the least priority since many SQ-80 owners might not have that controller.*

MM: How did you find the "hidden waves"?

SM: *(pause) That was done by crashing the ESQ's operating system by loading bad tape data and then sending the corrupted data to the SQ-80. I was able to access up to wave 255 but, as I said in the manual, most of the waves were not useful as a sound source.*

MM: Thanks for talking with me today.

(The writer always gets the last word.. or is it the editor??...) ■

[Actually, it's the publisher. — Pub.]

BACK ISSUES

Back issues are \$2.50 each. (Overseas: \$3 each.) Issues 1-9, 11, 13-23, 27, 29, 30, 35, 36, 37, 38 and 68 are no longer available. Subscriptions will be extended an equal number of issues for any issues ordered that are not available at the time we receive your order. ESQ-1 coverage started with Issue Number 13. SQ-80 coverage started with Number 29, (although most ESQ-1 coverage also applies to the SQ-80). EPS coverage started with Number 30. (But didn't really get going till Number 35.) VFX coverage got started in Number 48. Permission has been given to photocopy issues that we no longer have available - check the classifieds for people offering them. Reprints in our "Quick and Dirty Reprint Series" are available: MIRAGE OPERATIONS, for \$5, and MIRAGE SAMPLE REVIEWS for \$4. Each contains material from the first 17 issues.

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EPS Internals: Back to the Basics

The EPS 16 Bit Myth

John Loffink

There's quite a few myths floating around about the EPS. Myths like Ensoniq created their original EPS samples on a sixteen bit development system, so those old disks will play back as sixteen bit samples on an EPS-16 Plus. Or the EPS can play EPS-16 Plus disks with improved fidelity over EPS sounds. With this confusion flowing around, it's time to throw my own two bits in.

Sample resolution is defined by the number of bits containing the information. A bit has only two values, 0 or 1. Two bits can store the information 0, 1, 2 or 3. Three bits can store the information 0, 1, 2, 3, 4, 5, 6 or 7. Remember this last sentence, because there's gonna be a test later. Every new bit doubles the storage capacity, so at 13 bits you get 8192 points of information, and at 16 bits you get 65,536 points, or 8 times as many.

That, and only that, being the difference between 13 and 16 bit samples, where did these misconceptions arise about the EPS? Most of it comes from inaccurate interpretations of Ensoniq's own specifications, which have a tendency to be vague at times.

The *EPS Musician's Manual* specifications give a data storage format of 16 bits and a sample converter resolution of 13 bits. From this information you might incorrectly deduce that 16 bit files can be saved on an EPS if the Analog to Digital converters are bypassed.

Well, it's true that the EPS stores samples to disk in a sixteen bit file format. It's also true that transfers between computer and EPS over MIDI or SCSI use a sixteen bit format. That's why disks and software for the EPS are compatible with the EPS-16 Plus. So isn't the EPS 13 bit Analog to Digital converter for user sampling the limiting component in this instrument? Nope! The real culprit is the EPS memory. The EPS internal RAM storage capacity is 256k words x 13 bits, and the port for expansion memory is only 13 bits wide as well. It doesn't matter whether EPS samples are done using the internal Analog to Digital converter, or transferred via MIDI or SCSI, if the RAM's only 13 bits wide then the lowest three bits will get truncated before the sample is ever saved to disk.

This works both ways. If you load an EPS-16 Plus disk into the EPS, the lowest 3 bits of every 16 bit sample word get lost, because there's no RAM locations for those bits to get stored in. You'll still be playing 13 bit samples, though it's possible the higher fidelity of the EPS-16 Plus input sampling stages might improve the sound somewhat.

If you own a computer with sample editing software and an EPS-16 Plus this 13 bit limitation of EPS samples is easy to verify. Load in an Ensoniq or other computer developed EPS sample from the 16 Plus over MIDI or SCSI and save the file to

disk. Now load the file into a binary file editor (there are many available in the public domain), ignoring the first ten or twenty lines which probably contain various sample parameters. Here's a section from one such sample:

```
02F0: FE90 2690 1728 FFA8 E7F8 C650 D990 F7E8
0300: 0628 0328 0950 1DD0 2650 EF40 D950 14F0
0310: 15D0 ECA8 FA40 10A8 1728 2FE8 10F8 E280
```

The first four character segment is the address or location for the line. The rest of the four character segments are the actual data, where each character represents a four bit word in what is called hexadecimal format, and each segment represents a 16 bit sample word. Did you notice how the last digit is always an 8 or a 0? This is because the lowest 3 bits of the sample are always zero. There's no 0 through 7, just 0 or 8. Because the last character has only two values, it represents a resolution of 1 bit. Each segment has an actual resolution of 4 + 4 + 4 + 1 bits = 13 bits.

Looking at it another way, the samples consist only of the decimal values 0, 8, 16, 24, 32, 40...65536. This gives the actual number of points as 65536 divided by 8, which is 8192, the resolution for 13 bit samples.

The above sample data is taken from the instrument "Crystal Bell" from the original Ensoniq disk #ESD-4, one of the first EPS disks released by Ensoniq. While it was possible that Ensoniq could have rigged special 16 bit EPS's for their sample development, a random examination of their original disks shows that this is not the case. Sixteen bit development system or not, Ensoniq's own EPS samples are thirteen bits just like everyone else's.

There's just one way to get 16 bit samples and the fidelity associated with them: develop and play them on a 16 Plus. ■

References:

"Inside the EPS" by Dick Lord, *Transoniq Hacker* #39, September 1988.

"Ensoniq EPS-16 Plus Digital Sampling Workstation" (reviewed by Gary Hall), *Electronic Musician*, April 1991.

"EPS-16 Plus" (letter by Mick Seely, Livewire Audio), *Electronic Musician*, July 1991.

Bio: John Loffink owns and operates First Generation, a source for computer synthesized EPS & EPS-16 Plus samples. He has just finished converting 60+ samples from 13 to 16 bits, and needs a vacation.

Ensoniq VFX-SD and SD-1 Sequencer File Formats

Part II

Gary Giebler

This month we continue and conclude my description of VFX-sd and SD-1 sequencer file formats which was started in Issue #77.

VFX-SD and SD-1 Track Data Format

A track consists of a long word (4 bytes) containing the size or length of the track followed by a stream of sequencer events. Each Track should start with a clock event to initialize the track counter which starts at 01.01.00 (one tick before the start of bar 1). The last track event must be the End of Track event.

```
Track Length  Track Events ... .. End of Track
00 00 00 00 80 E6 00 01 ... .. 80 E9
```

VFX-SD and SD-1 Sequencer Events

All of the sequencer events for the VFX-SD and the SD-1 contain an even number of bytes. This was probably done because both keyboards contain 16-bit microprocessors which read and write data more efficiently 16 bits (2 bytes) at a time. When referring to 16 bits of data, we (in the computer world) refer to the data as one word. All sequencer events have the most significant bit (MSB) of the first word set to indicate the start of an event. All subsequent words have the MSB cleared. This allows the microprocessor (or us) to skip unknown events or to move backwards in the track data — something which would be nearly impossible without marking the first word of an event. Most sequencer events consist of two words (four bytes) of data. One exception is the End of Track Event which contains one word (two bytes).

FIRST EVENT WORD

```
MSB LSB
Bit: 15 14 13 12 11 10 09 08 07 06 05 04 03 02 01 00
Value: 1 d6 d5 d4 d3 d2 d1 d0 t7 t6 t5 t4 t3 t2 t1 t0
```

The least significant byte (lower 8 bits t7..t0) of the first word of each event contains the event type, giving us a total of 256 possible event types. The remainder of the first word (seven bits d6...d0 — remember the MSB is always set) contains the number of clock ticks to delay before executing the next event. Since the maximum delay is only 127 clock ticks, an event type (E6 hex) was created to allow longer delays.

KEY EVENTS 00 – 87 (00 – 57 hex)

The first 88 event types (00 – 87) (00h – 57h) refer to the 88 keys (A0 – C8) on a piano. Notice that by restricting the sequencer to 88 key events, the keyboards can't record the full MIDI note range. Realistically, this probably won't be a

problem unless you are using extremely large MIDI drum sets or controlling external devices such as lighting controllers, MIDI mixers, etc.

```
MSB LSB
Word 1: 1 d6 d5 d4 d3 d2 d1 d0 t7 t6 t5 t4 t3 t2 t1 t0
Word 2: 0 v4 v3 v2 v1 v0 n9 n8 n7 n6 n5 n4 n3 n2 n1 n0
[ Word 3: 0 cE cD cC cB cA c9 c8 c7 c6 c5 c4 c3 c2 c1 c0 ]
```

The second word of each key event contains a key-down velocity and a note duration. The note duration is stored in the lower 10 bits (n9...n0) and can range from 0 to 1023 clock ticks. If the duration of the note is longer than 1023 clock ticks, the 10 bits are set to zero and another word is added to the event. The third word (cE...c0) can contain note durations up to 32767 clock ticks (remember the MSB is cleared and can't be used). The velocity is stored in the 5 remaining bits of the second word. This brings up another limitation of the VFX-SD and SD-1 sequencer formats. MIDI note velocities can range from 0 to 127 giving 128 possible velocities. The VFX-SD and SD-1 sequencers can only store 32 different velocities. To allow for the full MIDI range, Ensoniq converts the 32 values into every fourth MIDI value (0,4,8,12...). If you edit the velocity of a note in a sequence, it will be changed to the nearest value allowed.

Poly Key Pressure Events 88 – 175 (58 – AF hex)

The next 88 event types (88 – 175) (58h – AFh) refer to the poly key pressure (aftertouch) for the same 88 keys (A0 – C8) on a piano. To obtain the key number, subtract 88 from the event type. This event type stores the entire midi pressure range in the lower 7 bits (p6...p0) of the second word. The remainder of the second word is not used and is set to zeros.

```
MSB LSB
Word 1: 1 d6 d5 d4 d3 d2 d1 d0 t7 t6 t5 t4 t3 t2 t1 t0
Word 2: 0 xx xx xx xx xx xx xx xx v6 v5 v4 v3 v2 v1 v0
```

Controller Events 176 – 199 (B0 – C7 hex)

The next event types (176 – 199) (B0h – C7h) refer to the controller events for midi controllers. Not all of the controller event types are defined at this time. The controller events store the MIDI controller value in the lower 7 bits (v6...v0) of the second word. The remainder of the second word is not used and is set to zeros.

```
MSB LSB
Word 1: 1 d6 d5 d4 d3 d2 d1 d0 t7 t6 t5 t4 t3 t2 t1 t0
Word 2: 0 xx xx xx xx xx xx xx xx v6 v5 v4 v3 v2 v1 v0
```


Review: Nightwind Mirage Samples

Barry Carson

Product: Samples.
For: Mirage.
Price: \$6 or \$8 per disk, depending.
From: Nightwind Sound, 170 Mar Monte Ave, La Selva, CA 95076.

By golly time goes fast, eh? It seems that only a short time ago I was a mere lad eager to enter the realm of digital sampling. My choices of instruments seemed limited to the Emulator for about a million dollars or the 360 Systems for about half a million (the tradeoff was that the 360 had no user sampling and no looping of samples). Then, as we all know, Ensoniq showed up with the perfect instrument at the perfect time for the perfect price. The Mirage became truly famous and tons of them were sold. Alas, like many technological wonders, the Mirage is mostly forgotten except by a handful of faithful followers. Luckily for us, Jim Newton of Nightwind Sound remains among the faithful. That's right, Nightwind has produced new samples for the Mirage. Nightwind has also come out with a set of EPS samples for those of us who are faithful followers of the newer samplers.

Nightwind sells sounds by the bank (3 per disk). The sounds are mostly of ethnic instruments and synthesizers. I got to listen to the Cachoe (seashell), Bentau 1 and 2 (musical bows), Raspli, Viri, Tympanon, Voruba Talking Drums, Tambu Grande, Triano, Bastel, Chape and Gubagubi along with some rhythm loops, brass and synthesizers with other assorted oddities. All this on two Mirage disks! You get a lot of bang for the byte here and, at \$6 or \$8 a disk, a lot of bang for the hard earned buck.

The Cachoe is a haunting sound with an intriguing loop and the Bentau samples are a couple of nice plucked sounds with the loops creating pleasant rhythmic patterns. The Raspli, Viri, Tambu Grande & Triano, Bastel, Chape, and Tympanon are all very interesting, well sampled percussion sounds. Included with the latter are assorted "Percussion Accents" that are some unusual, short percussion sounds. There are two interesting patterns on my favorite of these, the Voruba Talking Drums, and by using different loop points (oddly, the sound has no loop programmed in it) any number of intriguing, pulsing rhythms can be created. The last of the ethnic instruments are perhaps the hardest to describe. The Gubagubi sounds sort of like a jaw harp, the Crychord Bass sounds like a plucked string (with no loop), the Harmonic Can III sounds sort of like a bunch of tuned rubber bands stretched over something and strummed. The sample of a simple strum is okay, but the second sample is of an arpeggiated figure that, with a user selected loop length, can create fascinating patterns of notes and rhythms.

Along with these unusual sounds, Nightwind included a couple of rhythm patterns. "Industrial Action" is a brass and tympani affair that pretty much fits the title, the tympani sounding real or at least sampled, the brass sounding like a synthesizer. The second rhythm is "'70s Funk" and it's a drum, wah-guitar thing that's

perfect. It's almost impossible to hear this without playing the bass line to "Papa Was a Rolling Stone" or singing the theme from "Shaft." In this day of drum machines and sequencers, one could argue if this kind of sampled pattern is necessary, but if you didn't have the above mentioned equipment, this would be an easy way to get a great sounding rhythm section cooking for you.

The only full keyboard sound that I got to hear is the Synclavier Spectacular. It is a rich, full digital synthesizer sound with an interesting envelope. Since this envelope was sampled with the sound, it becomes shorter and shorter as it is transposed up the keyboard; this means the sound seems to ring forever in the low range and is cut off short near the top. Interestingly, even though it is a long, sustained sort of sound, there is no loop. The whole thing was evidently sampled. Make no mistake, the sound is good as it is, but an eager hacker may want to loop the sound and create his or her own envelopes.

The final sounds for the Mirage that I received to review are two brass sounds, Brass Stabs and Stinger. These are both good horn sections with percussive attacks. The stabs are short hits with a reverb sound sampled along with the brass. Stinger is very reminiscent of the brass sections on the old Sam and Dave records; if "Knock on Wood" is part of your song list and you have a Mirage, this sample is for you.

If you haven't got the drift yet, I'm pretty excited about this collection of samples. The very fact that someone out there is actively supporting the Mirage with new sounds is, in itself, good news. The fact that these sounds are good is great news. The question of exactly where these samples come from is never addressed. I am assuming that Mr. Newton has access to these unusual instruments as I've never seen a sampling CD with Gubagubi or Raspli on it. The Mirage has the tendency to make samples of acoustic instruments sound artificial or synthetic, yet the Nightwind samples retain a definitely acoustic sound. If you only use your Mirage to play electric organ parts in the oldies band at the corner bar on Friday night, you may have no use for most of these sounds or the other oddities offered by Nightwind such as the Huruk, Mijweh, Chakë or Ang Klung. On the other hand, if you are into New Age or ethnic or soundtrack work, or you just love new sounds for the Mirage, you may well benefit from investigating these samples or Nightwind's demo tape yourself. Now that we live in the days of affordable, high fidelity 16 bit sampling, it's worth pointing out that anything sampled on a Mirage is, at best, still going to sound like a Mirage. Mr. Newton seems to have done a great job sampling, but to expect these sounds to be free of the usual Mirage noise, grunge and aliasing would be to court disappointment.

Speaking of high fidelity sampling, next time we will take a look at Jim Newton's Nightwind Sound Samples for the EPS. ■

Bio: Barry Carson is getting a little sick of thinking up these clever little things all the time. [Ed. — Well, excuse me!]

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M.U.G. will provide Out-of-Print issues for cost of materials and postage. M.U.G. Hotline: 212-465-3430 or write: G-4 Productions, PO Box 615TH, Yonkers, NY 10703. Attn: TH Back Issues. Phone: (212) 465-3430.

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ESQ & SQ-80 Hackerpatch

By Sam Mims

Hackerpatch is intended to be a place where patch vendors can show their wares and musicians can share their goodies and impress their friends. Patches designated "ESQ-1" will also work on the SQ-80. The reverse is not always true. Once something's published here, it's free for all. Please don't submit patches that you know to be minor tweaks on copyrighted commercial patches unless you have permission from the copyright owner. All submitted patches are subject to consideration for mutilation and comments by Sam Mims—our resident patch analyst. If you send in a patch, please include your phone number. Requests for particular patches are also very welcome.

ESQ Patch: PABIMS

by Steve Munro, Guilderland Center, NY

I wanted a keyboard sound using the "round sound" of square waves, but mellow, especially in the low end. So, oscillators 1 and 3 use the SQUARE2 waveform, and are beefed up by OSC 2 using the SINE wave, with SEMI=07. LFO 2 handles the panning, and the mod wheel adds vibrato via LFO 3. ENV 1 gives the filter velocity control and release time.

The Hack

Turning on the AM on the MODES page gives PABIMS less of a round sound, and turning SYNC on gives yet another nice variation. I also liked changing the filter parameters for another variation; try $FREQ=100$, $RES=31$. To smooth out the sound into more of a pad, try changing T1 on the ENV 4 page to 22, and T4 to 32. I also had fun changing the waveforms of oscillators 1 and 3; this works best on an SQ-80, with SAW 2, VOICE3, and BREATH waves.

SQ-80 Patch: HYMN

by Craig Roth, Skokie, IL

With the mod wheel turned away from you, this provides a simple chorus sound. As the wheel is turned toward you, a pipe organ kicks in.

The Hack

The SQ-80's "R" feature on the T4 envelope parameters adds a great reverb simulation to patches, and it makes quite a difference on this one. Other than that, ESQ users can type this one straight in. I'd suggest a T4 value of 34 for ENV 4, to simulate the ambience of Craig's patch. The VOICE 3 wave works nicely in OSC 1 and 2 if you want a more breathy new-age sound. Alternatively, try replacing the ORGAN of OSC 3 with BREATH 3, and changing its OCT to -1; this creates a nice fat vocal sound. For even more breath, set the filter resonance to 31, and the cutoff FREQUENCY to 90. To turn

Craig's original choir into a chorus of underwater mermaids, simply turn the AM parameter on.



Bio: Sam Mims is a studio session player and programmer in Los Angeles, and is keyboardist for Richard Elliot. He owns Syntaur Productions, a company that produces music for film and TV and markets sounds for Ensoniq keyboards.

ESQ-1 PROG: PABIMS										BY: Steve Munro	
	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH			
OSC 1	-1	0	0	SQR2	*OFF*	-	LFO3	+3			
OSC 2	0	7	0	SINE	*OFF*	-	LFO3	+3			
OSC 3	-1	0	2	SQR2	LFO3	-1	*OFF*	-			
	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH					
DCA 1	63	ON	*OFF*	-	*OFF*	-					
DCA 2	63	ON	*OFF*	-	*OFF*	-					
DCA 3	63	ON	*OFF*	-	*OFF*	-					
	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH				
FILTER	45	0	0	*OFF*	-	ENV1	+63				
	FINAL VOL	PAN	PAN MOD	DEPTH							
DCA 4	63	7	LFO2	+63							
	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD			
LFO 1	-	-	-	-	-	-	-	-			
LFO 2	8	OFF	OFF	TRI	63	0	63	*OFF*			
LFO 3	22	OFF	OFF	TRI	0	0	0	WHEEL			
	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK	
ENV 1	+63	+63	+63	63	63	0	0	0	24	63	
ENV 2	-	-	-	-	-	-	-	-	-	-	
ENV 3	-	-	-	-	-	-	-	-	-	-	
ENV 4	+63	+63	+63	15	63	0	17	63	24	63	
	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC			
MODES	OFF	OFF	OFF	0	OFF	ON	OFF	OFF			
	SPLIT/LAYER	S/L PRG	LAYER	L PRG	SPLIT	S PRG	SPLIT KEY				
	OFF	-	OFF	-	OFF	-	-				

SQ-80 PROG: HYMN										BY: Craig Roth	
	OCT	SEMI	FINE	WAVE	MOD#1	DEPTH	MOD#2	DEPTH			
OSC 1	-1	0	5	VOICE1	LFO1	+1	*OFF*	-			
OSC 2	-1	0	0	VOICE1	*OFF*	-	*OFF*	-			
OSC 3	-2	0	1	ORGAN	*OFF*	-	*OFF*	-			
	LEVEL	OUTPUT	MOD#1	DEPTH	MOD#2	DEPTH					
DCA 1	24	ON	ENV1	+46	KYBD2	+16					
DCA 2	21	ON	ENV1	+31	KYBD2	+16					
DCA 3	63	ON	WHEEL	-25	*OFF*	-					
	FREQ	Q	KEYBD	MOD#1	DEPTH	MOD#2	DEPTH				
FILTER	79	0	9	*OFF*	-	*OFF*	-				
	FINAL VOL	PAN	PAN MOD	DEPTH							
DCA 4	63	8	KYBD2	+27							
	FREQ	RESET	HUMAN	WAV	L1	DELAY	L2	MOD			
LFO 1	20	OFF	ON	NOISE	53	63	63	*OFF*			
LFO 2	-	-	-	-	-	-	-	-			
LFO 3	-	-	-	-	-	-	-	-			
	L1	L2	L3	LV	T1V	T1	T2	T3	T4	TK	
ENV 1	+52	+63	+48	0L	52	32	44	43	63	0	
ENV 2	-	-	-	-	-	-	-	-	-	-	
ENV 3	-	-	-	-	-	-	-	-	-	-	
ENV 4	+63	+58	+58	0L	0	0	32	32	19R	0	
	SYNC	AM	MONO	GLIDE	VC	ENV	OSC	CYC			
MODES	OFF	OFF	OFF	0	OFF	OFF	OFF	OFF			
	SPLIT/LAYER	S/L PRG	LAYER	L PRG	SPLIT	S PRG	SPLIT KEY				
	OFF	-	OFF	-	OFF	-	-				

SD & VFX Hackerpatch

SD & VFX Prog: THX BRASS

NOTES: THX BRASS is the sound that you hear in the movie theatres just before the feature presentation, to let you know that the theatre is equipped with the THX sound system. It's an analog brass patch, actually, where four oscillators slide into pitch from different directions. To get the effect, play an open fifths chord voiced (from the bottom note of the keyboard up): C, C, C, G, C. The patch is great for doing effects and things; we use it in our band's stage intro.

THE HACK: This sound swells in slowly, and it would be simple to remove this swell effect, then reinstall it with mod wheel control. Removal: Set the Initial level of ENV 3

WAVES	1	2	3	4	5	6
Wave	Sawtooth	Sawtooth	Sawtooth	Sawtooth	Sawtooth	Sawtooth
Wave Class	Waveform	Waveform	Waveform	Waveform	Waveform	Waveform
Delay	0	0	0	0	0	0
Start						

MOD MIXER	1	2	3	4	5	6
SRC-1				LFO		
SRC-2				Noise		
SRC-2 Scale				0.1		
Shape				QuikRise		

PITCH	1	2	3	4	5	6
Octave	-1	-1	-1	-1	0	-1
Semitone	0	0	0	0	0	0
Fine	0	+10	-10	+4	+10	-4
Pitch Table	System	System	System	System	System	System

PITCH MODS	1	2	3	4	5	6
MODSRC	*Off*	*Off*	*Off*	Mixer	*Off*	Noise
MODAMT	0	0	0	+10	0	+4
Glide	None	None	None	None	None	None
ENV1	+99	-99	+99	0	-99	-10
LFO1	0	0	0	+5	0	+5

FILTER 1	1	2	3	4	5	6
Mode	2LP	2LP	2LP	2LP	2LP	2LP
Cutoff	0	0	0	0	0	0
KBD	+50	+50	+50	+50	+50	+50
MODSCR	Pr+V1	Pr+V1	Pr+V1	Pr+V1	Pr+V1	Pr+V1
MODAMT	+50	+50	+50	+50	+50	+50
ENV2	+75	+75	+75	+75	+75	+75

FILTER 2	1	2	3	4	5	6
Mode	2LP	2LP	2LP	2LP	2LP	2LP
Cutoff	0	0	0	0	0	0
KBD	0	0	0	0	0	0
MODSCR	Timbr	Timbr	Timbr	Timbr	Timbr	Timbr
MODAMT	+30	+30	+30	+30	+30	+30
ENV2	+80	+80	+80	+80	+80	+80

OUTPUT	1	2	3	4	5	6
VOL	74	74	74	74	74	74
MODSRC	Wheel	Wheel	Wheel	LFO	Wheel	*Off*
MODAMT	+99	+99	+99	0	+99	0
KBD Scale	0	0	0	0	0	0
LO/HI Key	C5/C7	C5/C7	C5/C7	C5/C7	C5/C7	C5/C7
Dest Bus	FX1	FX1	FX1	FX1	FX1	FX1
Pan	50	85	15	85	85	0
MODSRC	*Off*	*Off*	*Off*	*Off*	*Off*	*Off*
MODAMT	0	0	0	0	0	0
Pre-Gain	Off	Off	Off	Off	Off	Off
Voice Prior	Medium	Low	Medium	Medium	Medium	Medium
Vel Thresh	0	0	0	0	0	0

LFO	1	2	3	4	5	6
Rate	30	30	30	30	30	30
MODSRC	Press	Press	Press	Press	Press	Press
MODAMT	+15	+15	+15	+15	+15	+15
Level	0	0	5	0	0	5
MODSRC	W1+Pr	W1+Pr	W1+Pr	W1+Pr	W1+Pr	W1+Pr
Delay	0	0	0	0	0	0
Waveshape	Triangle	Triangle	Triangle	Triangle	Triangle	Triangle
Restart	Off	Off	Off	Off	Off	Off
Noise SRC RT	0	0	95	0	0	95

By: Sam Mims, Syntaur Productions

(voices 1, 2, 3, and 5) to 99. Reinstallation: On the Output page (same voices), set MODSRC=WHEEL, and MODAMT=+99. Note that the 0* patch select gives you a normal analog brass sound (the other patch selects do nothing). Other than that, you're stuck making THX sounds with this one. Remember: The audience is listening.

— Sam Mims

SELECT VOICE

00	1	2	3	4	5	6
0*	1	2	3	4	5	6
*0	1	2	3	4	5	6
**	1	2	3	4	5	6

ENV1	1	2	3	4	5	6
Initial	99	99	99		99	0
Peak	0	0	0		0	99
Break 1	0	0	0		0	0
Break 2	0	0	0		0	0
Sustain	0	0	0		0	0
Attack	76	76	76		76	0
Decay 1	50	50	50		50	2
Decay 2	50	50	50		50	0
Decay 3	50	50	50		50	0
Release	50	50	50		50	1*
KBD Track	0	0	0		0	0
Vel Curve	Cnvx2	Cnvx2	Cnvx2		Cnvx2	Cnvx2
Mode	Repeat	Repeat	Repeat		Repeat	Normal
Vel-Level	0	0	0		0	0
Vel-Attack	0	0	0		0	0

ENV2	1	2	3	4	5	6
Initial	0	0	0	0	0	0
Peak	46	46	46	90	46	99
Break 1	78	78	78	78	78	78
Break 2	99	99	99	51	99	51
Sustain	99	99	99	50	99	50
Attack	0	0	0	0	0	0
Decay 1	46	46	46	15	46	49
Decay 2	73	73	73	43	73	43
Decay 3	93	93	93	81	93	81
Release	37*	37*	37*	37*	37*	37*
KBD Track	0	0	0	0	0	0
Vel Curve	Cnvx2	Cnvx2	Cnvx2	Cnvx2	Cnvx2	Cnvx2
Mode	Norml	Norml	Norml	Norml	Norml	Norml
Vel-Level	0	0	0	0	0	0
Vel-Attack	20	20	20	20	20	20

ENV3	1	2	3	4	5	6
Initial	99	99	99	99	99	99
Peak	99	99	99	99	99	99
Break 1	99	99	99	80	99	80
Break 2	99	99	99	80	99	80
Sustain	99	99	99	80	99	80
Attack	65	65	65	0	65	0
Decay 1	99	99	99	99	99	99
Decay 2	0	0	0	0	0	0
Decay 3	0	0	0	0	0	0
Release	17*	17*	17*	20*	17*	20*
KBD Track	0	0	0	0	0	0
Vel Curve	Cnvx2	Cnvx2	Cnvx2	Cnvx2	Cnvx2	Cnvx2
Mode	Norml	Norml	Norml	Norml	Norml	Norml
Vel-Level	0	0	0	0	0	0
Vel-Attack	0	0	0	0	0	0

PGM CONTROL

Pitch Table	Off
Bend Range	**
Delay	x4
Restrike	7
Glide Time	0

EFFECTS (1)

Effect	Chorus & Reverb 1
Decay	70
FX1 Mix	50
FX2 Mix	50

EFFECTS (2)

Rate	18
Depth	50
Delay	52
Rate Mod	0
Depth Mod	0
Mix	50

EFFECTS (3)

Waveshape	Sine
Mod Source	Mod Wheel
HF Cut	Off

PERFORMANCE

Timbre	50
Release	0
Pressure	Key

Prog: ETHEREAL PIANO

By: Mark Clifton

Notes: This is a bright New Age piano that sounds like a MIDI stack that Yanni might come up with. The bottom end is good for

a dense chording while the upper range has a more melodic character. The mod wheel adds more reverb.

WAVE	1	2	3
Select Voice	On	On	On
Wave Class	String	Wave	Wave
Wave	DigPiano	DigPiano	SynBell
Delay Time	000	000	000
Wave Direction	Fwd		
Start Index	00		
MODSRC	Off		
MODAMT	-		
Restrk Decay	43	43	43

LFO	1	2	3
LFO Speed			
Noise Rate			
Level			
Delay			
MODSRC			
Wave			
Restart			

AMP	1	2	3
Initial	99	99	99
Peak	99	99	99
Break	80	60	65
Sustain	00	00	00
Attack	00	00	00
Decay 1	50	50	32
Decay 2	73	65	59
Release	30	30	30
Vel-Level	19	19	19
Vel-Attack	00	00	00
Vel Curve	Conv	Conv	Conv
Mode	Norm	Norm	Norm
KBD Track	00	00	00

PITCH	1	2	3
Octave	+1	+1	+3
Semitone	00	00	00
Fine	-03	+04	00
ENV1	00	00	00
LFO	00	00	00
MODSRC	Off	Off	Off
MODAMT	-	-	-
KBD Pch Track	On	On	On
Glide	Off	Off	Off
Glide Time	00	00	00

FILTER	1	2	3
Filter 1	2Lo	3Lo	3Lo
Filter 2	2Hi	1Lo	1Lo
FC1 Cutoff	127	127	125
ENV 2	+99	+51	+99
FC1 KBD	00	+18	+99
MODSRC	Noise	Off	Wheel
MODAMT	+06	-	-51
FC2 Cutoff	000	046	127
ENV2	00	+99	+99
FC2 KBD	+99	+99	+99
FC1MOD-FC2	On	On	On

OUTPUT	1	2	3
VOL	80	90	56
Boost	Off	Off	Off
MODSRC	Off	Off	Off
MODAMT	-	-	-
KBD Scale	00	00	Zone
Key Range	A0 C8	A0 C8	C2 A5#
Output Bus	FX1	FX1	FX1
Priority	Med	Med	Med
Pan	00	+28	-42
Vel window	000	000	000

ENV1	1	2	3
Initial			
Peak			
Break			
Sustain			
Attack			
Decay 1			
Decay 2			
Release			
Vel-Level			
Vel-Attack			
Vel Curve			
Mode			
KBD Track			

ENV2	1	2	3
Initial	99	99	99
Peak	99	99	99
Break	75	75	99
Sustain	00	00	00
Attack	00	00	00
Decay 1	50	50	50
Decay 2	70	70	99
Release	30	30	30
Vel-Level	19	19	19
Vel-Attack	00	00	00
Vel Curve	Conv	Conv	Conv
Mode	Norm	Norm	Norm
KBD Track	-14	+56	+98

Standard
Sound
Programming

Effects Programming

(To save space, only those effects utilized are listed. A complete blank form was published in Issue #68.)

CHORUS AND REVERB

FX-1	26
FX-2	60
Decay time	54
HF Damping	26
Chorus Rate	10
Chorus Depth	21
Chorus Center	50
Feedback	+05
Chorus Level	40
MOD (Dest)	FX1-Mix
BY (MODSRC)	Modwheel
MODAMT	+51

The Hack: This patch works because it doesn't try to sound subtle. It has a celeste sort of quality in the higher registers, partially due to a raised Voice 3. (Note the Key Range for that voice.) The almost harpsicord-like low end should cut even (dare I say) louder New Age material. Although "Ethereal Piano" works with its intended Octave settings, because Voice 3 is so very high, it runs out of pitch toward the SQ's final octave. This creates some inconsistency (though that may be the author's intention). Try shifting the keyboard. In the Pitch Section for Voices 1 and 2 change OCT to 0. You'll have to change OCT to +1 for Voice 3. To generate a little movement, use Voice 1's LFO: in that voice's Pitch Section set LFO=+01. In the LFO Section, use LEVEL=20 and LFO SPEED=22. (WAVE=SINE.)



Jeffrey Rhoads

Bio: Jeffrey Rhoads has been a keyboardist/composer on the Philadelphia Jazz and R + B scene for a period of time resembling forever. He has an interest in cinema and has developed some film courses. Jeff still believes in magic and longs for city lights.

SQ-1 & 2 Hackerpatches are published with the same constraints and understandings as the ESQ, SQ-80, and VFX patches. The hacking and mutilating part is being handled by Jeffrey Rhoads.

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MODERN SYNTH

ENSONIQ VEX

VF-1: Power Shimmer
Melody Bass
Bamboo Flute
Caribbean Drum

PR-2: Winston Piano
Lead Strings
Wind Chimes

FM-2: JazzBass Clav
Troll Drops
Hand Bell

EG-2: Fender Strat - Clean
Fender Strat - Distort

SS-2: Solo Viola
Pizzicato Viola
Tremolo Viola

X-6: Orchestral Strings
(req memory expander)

VF-2: Elizabethan
Studio Electric
Pop Piano

PR-3: Glasnost Men
Opera Chorus
Fanfare

FM-3: Lastic Brass
Redwood
Rez Bass

EG-3: Scholz Rockman
Gibson ES-335

SS-3: Solo Cello
Pizzicato Cello
Cello Harmonics

OP-1: Marimba
Glockenspiel
Gongs

VF-3: Deep Strings
Trans-Tine 1
Trans-Tine 2

CLASSIC SYNTH

OBERHEIM & MOOG

OM-1: OB-X Strings
Emerson Hall

FM-4: Ballerina
Plucked Ham
Super Bass

X-1: Fender Rhodes 88"
(req memory expander)

SS-4: Solo Bass
Pizzicato Bass

OP-2: Vibraphone
Xylophone
Brake Drums

VF-4: Ritual
Rez Trumpet
Bali & I

OM-2: Ripper
Razor

ADDITIVE SYNTHESIS

AD-1: Wind Chime
Barrock
Arena

X-2: Steinberger Bass Deluxe
(req memory expander)

WW-1: Bassoon
Bass Clarinet

OP-3: Tubular Bells
Timpani
Helf's Bells

ROLAND "LA" SYNTHESIS

LA-1: Melo Chiffer
Sweet E.P.
Brass Section

OM-3: Fog Strings
Filter Pop
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AD-2: Space Vibe
Benza-Dream

X-4: Takamine 12-String
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OP-4: Roto Toms
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LA-2: Pipe Dream
Cosmos
Java Bell
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OM-4: Sass Brass
Warm Keys
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AD-3: Spitfire Brass
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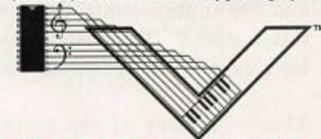
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Electronic mail - GEnie Network: TRANSONIQ, CompuServe: 73260,3353, PAN: TRANSONIQ, Internet (via CS): 73260.3353@compuserve.com.

This is probably one of the most open forums in the music industry. Letter writers are asked to please keep the vitriol to a minimum. Readers are reminded to take everything with a grain of salt. Resident answer-man is Clark Salisbury (CS). Letter publication is subject to space considerations.

Howdy Hackers:

Having avoided any do-it-yourself projects in the *Hacker* for some time, I think it's time for us to take another look at what we can do these days.

With several very popular machines (notably, the **Mirage**, **ESQ-1**, and **SQ-80**), discontinued, it's tempting to see what can be done to enhance their capabilities, which are considered somewhat limited in 1991. There are some relatively simple hardware mods that could give their owners some slick new possibilities for very little money or effort, making it a relatively painless way of getting more from your present investment.

One example would be to add an audio input to your axe, allowing you to process external signals through the instrument's filters and VCAs, giving you a hell of a powerful way to modulate guitar, vocals, or other sounds under real-time MIDI control! Signals could be sent through one or all of the filter sections simultaneously and the filter cutoff, modulation depths, and VCA gain could be varied via note-on, velocity, and continuous controller messages. Just think, with 8 VCFs and VCAs, you would have the ultimate wah-wah of all time!

That's just one of my ideas. Interested readers are encouraged to write me with their ideas and suggestions for ESQ/SQ/Mirage modifications and projects. The most popular and the ones that can be done for a reasonable amount of time and money, will be researched for future *Hacker* articles. Your input is strongly encouraged - I want to develop projects that readers will want to build for themselves!

Please write me at the address below.

Oh, yeah - please include a SASE if you want me to reply, and thanks to all of you for writing.

Sincerely,
Charles R. Fischer
P. O. Box 5372
Hercules, CA 94547
(510) 724-0804

[CS - Readers, here's your chance. Seems to me like Mr. Fischer has made a heck of an offer here - so let's keep those cards and letters coming!]

[TH - We did manage to slip in a sample of Mr. Fischer's projects in this very issue.]

Hacker,

I have an **SQ-2** interfaced with an IBM clone (Compaq) and Cakewalk software. I want to use the PC as a librarian to store sounds and sequences with Sys Ex messages.

It doesn't work as advertised.

I've talked with Ensoniq and 1) slowed Cakewalk way down and 2) split the file into two parts as they suggested. The file seems to come over from the **SQ-2** fine, but going the other way, the **SQ-2** locks up and erases all its RAM. (Tacky) It reinitializes okay, but everything is lost. Help! If there is other and better software for this application, I'd be interested.

Thanks,
Brandon Ahrens
Albuquerque, NM

[CS - I've talked with Ensoniq and they know of no reason why your system should not work as advertised. There's a lot of Cakewalk users out there, and I've never heard of a problem either. Perhaps one of them might be able to shed some light, but in the meantime, I suggest you re-contact Ensoniq and go over the situation with them in some detail. And if you haven't done so already, it might be a good idea to talk to Twelve Tone Systems, the publisher of Cakewalk.]

[Ensoniq - We assume that you are trying to send sequence data, but you don't specify that. The problem you are experiencing is caused by the fact that when sending sequence data the SQ-2 (as all ENSONIQ products) sends two messages, a header description and then the data itself. This is because of the large size of the sequencer data transmission, which may be larger than some devices can receive.

Cakewalk is sending back the data as one continuous transmission, since it is a "generic" recorder. As you were instructed, separating the header from the data with what Cakewalk calls Meta Events does successfully correct this situation in all of our tests.

Perhaps you scrambled the memory of your SQ-2 when you first attempted to download the data and have not re-initialized the unit since. Try pressing EDIT Sequence, followed by Bank button #9 and then Screen button #9. This brings you to the Reinitialization mode. If reinitializing fails to correct this, then you may not have inserted enough time between the Meta Events.

For users of the Alesis DataDisk just double-click the RECEIVE button of the Alesis unit so that it will receive two dumps of sequencer data.]

Dear Hacker,

Thanks for an excellent magazine that is not afraid to tackle those problems that are down to the bits. I'm a serious programmer for MIDI software (e.g., PM-U20 module for C-LAB's PolyFrame Universal Editor). Owning an **EPS-16 PLUS**, I'd like to give it some software support for the Atari ST computer, which is quite popular in Germany. I'd like to mention some of the problems writing MIDI software for the EPS (and other Ensoniq products like the VFX) that make editing these devices by an external computer device almost impossible.

1. The first SysEx reception requires the EPS to load an overlay. The bad thing is that the EPS returns "WAIT(01)" rather than the expected "INSERT SYSTEM DISK(02)" response. The user therefore cannot be informed correctly of what to do. If it is possible, Ensoniq should think of making complete MIDI access possible without the need to load an overlay.

2. When sending additional SysEx data while previous messages are processed, the EPS often locks up.

3. The given delay of 2 seconds between two SysEx commands is unacceptable. It's im-

possible to explain to a potential user that changing a value, which can be done on the EPS itself within a fraction of a second, needs 2 seconds when done by an external computer. This is indeed the most serious problem of all. For convenient editing, processing SysEx commands must speed up significantly.

4. Effects parameters of the onboard effects should be made editable via SysEx. (External Command Specification from October 4, 1990 doesn't mention any parameter changes.)

Concerning the current 16 PLUS operating system (1.1) I have encountered the following bugs (?):

1. Even if no instrument is selected on the front panel ("LOCAL OFF" state), patch select buttons, mod and pitch wheels affect the last selected instrument. This is especially annoying when playing other sound modules via a sequencer's MIDI THRU. Sometimes selecting and deselecting an instrument or pressing an instrument button of a track where no instrument is loaded makes the EPS work in the correct manner again.

2. The Data Entry slider's response is quite inaccurate and slow.

3. Instruments made on the "old" EPS (i.e., the ESS-Library) often have an audible "click" on key release, when the release time is near zero. As this is not the case with the same instruments on the old EPS, it must be a bug of the EPS-16 PLUS.

4. It is possible to assign different Wave-samples overlapping key ranges in the SAME layer (at least the display says so). This should be made impossible since this is internally (see Layer Map in SysEx and audible result) not true.

Some suggestions for future OS releases.

1. Make it possible to read the complete OS to memory at system startup so that no System Disk access will be necessary during operation.

2. To obtain Pressure response on white keys, you have to apply quite a bit more force than on black keys. This is probably because the induction loops under the keys are lined up straight and therefore do not consider the different length of the keys. This should be taken into account when calculating the pressure value. It also would be

better to separate settings for velocity and aftertouch sensitivity and give them an extended value range (e.g., 0-99).

3. The Keyboard Version of the EPS-16 PLUS should respond to ALL NOTES OFF and ACTIVE SENSE commands.

3. The Hall Reverb program has an attack with relatively high frequencies that sound like a slightly delayed echo. Even if increasing the "Hi Freq. Damp" value, the "echo" doesn't vanish. This effect (to my ears) "smears" short sounds with a hard attack, like a cowbell. Perhaps you can change this effect?

Yours sincerely,
Christian Roth
Schwabhausen, Germany

[CS - While I can't respond for Ensoniq, I feel it should be pointed out that I have used librarians and editors for all their products, with great success. So it can't be "nearly impossible" to create such software - at least not so far as companies like Opcode, Digidesign, Passport Systems and so on are concerned - because these products work. And for the most part, they work rather well.]

[Ensoniq - As Clark stated, "impossible" is an unrealistic term, as many programmers have created excellent software utilities for our products with the same Sys Ex structure that you are working with (Passport's Alchemy, Opcode's Galaxy, Dr. T's X-Or and others come to mind.)

As for your requests:

1) It's impossible to bypass the need to load the overlays as this would involve a major rewrite of the OS and increase the cost of the unit because of the need for a markedly larger OS ROM. Anyone looking to do advanced editing and Sys Ex communication should always leave the OS disk in the drive because of this. As a programmer you should be sure to clearly state this fact in the documentation of your program.

2, 3 and 4) This is simply the way the product is designed and can't easily be changed. Thanks for the observations, though.

"Bugs"

3) The output hardware on the EPS-16 PLUS is completely digital, with instantaneous volume response as opposed to the

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voltage-controlled output of the original EPS. This can lead to a click on some sounds if extremely short release times are used. This can be corrected by editing the AMP release envelope time.

Suggestions

1) There is not enough system memory to do this. The system of overlays allows us to grow and enhance the EPS without always changing ROMs or increasing the cost of the unit to add potentially unused memory, in the expectation that it may someday be used.

2) Pressure response does take into account the circumstances you mention.

4) Since effects can be soft-loaded we may be able to release a new Reverb with these characteristics modified. Stay tuned...]

Dear Interface,

I know, I know! In the September '91 Issue, I wrote and asked about miking and the EPS, and here I am again with a new set of comments. I have since returned the EPS to my friend, Tom Metcalf of Ensoniq Corp,

who so graciously lent it to me for upwards of a year, and got a "pre-owned" (as they say in the used car trade) EPS-16 PLUS turbo model.

First of all, in response to Paul Santa Maria who asked some EPS questions in the same Interface issue as myself: Yes, there is a source for in-depth information regarding the EPS/EPS-16 PLUS. While the factory *Musician's Manuals* are excellent step-by-step reference sources, I have found the "Ensoniq EPS-16 PLUS Operations and Sampling Book," by Lorenz Rychner (along with Bobby Maestas) to be an excellent step-by-step tutorial. Paul, as a fellow guitarist, I can assure you that the tutorials are very much broken down into easily-understood lessons or tasks. I assume that you are still using the original EPS, and can vouch for the same basic information and explanations in Bobby's original "EPS Sampling Book," as I found this title very useful when dealing with that particular instrument. Both are available through Alexander Publishing.

Secondly, to Clark Salisbury: The same as above! In your answer to Paul, you stated that you were "willing to listen to recommendations" in this matter as you hadn't

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seen anything of this type. As an instructor of music at the college level, I have plenty of daily contact with various instructional materials and have developed quite an eye for sensing whether a text will adequately convey the essence of the material. I find that to be the case in regard to the above titles. Check them out for yourself and thanks for listening.

Sincerely,
Anthony Ferrara
Philadelphia, PA

[CS - Thanks for the tips, Anthony. By the way, do you think you could ask Tom Metcalf if I might borrow his car?]

Dear Sir/Madam,

I am an ESQ-1 (version 3.5) owner. Ensoniq gear is not very common in my part of the world (mainly you see Yamaha and Roland around here). I like the ESQ-1 very much primarily because the programming, editing, etc. are so straightforward.

However, I do have one small problem that perhaps you or one of your group may be familiar with. The ESQ has no transpose

function for live playing and I'm not very good at playing in the keys of E or A or any of the other popular guitar keys. I bought an Anatek Pocket Transpose, which works well except I get unwanted "NOTES OFF" when playing between the "transpose note" and middle C. As you can imagine, this causes all sorts of difficulties. Is there another way to transpose the ESQ? I'm quite prepared to buy parts and fire up the old soldering iron. I'm also interested in buying voice cartridges from the U.S.

All the best,
Ian Harvie,
Queensland, Australia

[CS - There are other products that will perform MIDI transposition, such as the MX-8, from Digital Systems, but you might also consider programming ESQ sounds in different keys. It's not difficult, and it's a lot cheaper than buying more hardware. All you need to do to change the key for any particular sound is to adjust the tuning for each of the ESQ's three oscillators and save the new version of the program back to memory (or cartridge). Let me elaborate: Pressing one of the three OSC buttons will take you to the programming page for that particular oscillator. Use the "OCT=" parameter to set the initial octave that the oscillator will play (its range is from -3 to +5, with each increase or decrease of one number representing a change of one octave up or down) and the "SEMI=" parameter to change the pitch of the oscillator in increments of a half-step (a half-step is the same as a semitone). Range is from 0 to 11.]

Dear TH,

I am trying to use the Avalon (Steinberg) V 1.0 DSP software on the Atari ST to edit my EPS-16 PLUS samples. I have not been able to transfer wavetable data from my EPS-16 PLUS to Avalon. I always get the error message, "MIDI DATA ERROR." I've got the Atari MIDI Out connected to the EPS MIDI In, and the Atari MIDI In connected to the EPS MIDI Out. Is there something I'm doing wrong? Is there some incompatibility between the old EPS and the EPS-16 PLUS? (The icon in Avalon specifies the EPS and not the EPS-16 PLUS.)

Thanks,
Koen Vanderschaeve
Anzegem, Belgium

[CS - I'm afraid I'm not familiar with the Avalon software, but it does sound to me as though you have the MIDI ins and outs connected correctly, and no, there shouldn't be any reason why the EPS 16-Plus would not work with the system if the classic EPS does. My suggestion would be to first contact Steinberg and get their input. If that doesn't solve the problem, try Ensoniq customer service at 215-647-3930.]

[Ensoniq - Make sure that MIDI SYS.EX=ON on the Edit System/MIDI page, and the EPS-16 PLUS BASE MIDI channel is set to the same as specified in the AVALON software. What many people don't realize is that MIDI Sys Ex messages are channel specific, and computers and products must be set up accordingly.]

Dear Hacker,

There is a way to copy tracks between sequences that is incredibly simple on the EPS. (According to Ensoniq, it's not possible.)

All one need do is append the sequence containing the track to be copied to the destination sequence. Select "Copy Track" after selecting instrument to be copied and then select the same or destination sequence. Then select the bar range of the original destination sequence where you want the track to play. For example, Sequence A is four bars and Sequence B is four bars. Sequence B is eight bars after the appending process. Simply choose bars 1 - 4 where you want the track when you reach the "Bar 1 thru Bar 8" page.

That's it!
Paul Santa Maria
Miami, FL

[CS - Slick! Thanks for the tip.]

Dear Hacker,

We had advanced warning that the November *Hacker* would carry Bryce Inman's review of our Music Labs Sequences. So, when our copy arrived, it was with a mixture of anticipation and trepidation that we turned to page 12.

We are very clear that the approach we've taken to this craft - ease and speed of use through a single sound setup - has some limitations. We know that working within the confines of a 2x machine also narrowed

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our possibilities a bit. And we know that the biggest part of a sequence's quality just comes down to what an individual likes. Considering all that, I'm glad I wasn't the one who had to do the review!

We feel that Bryce's review treated our products very accurately and fairly. We're quite flattered, really. In fact, the review is almost *too* good and we wanted everyone to know that Bryce is *not* on our payroll and we didn't coach him on what to say.

There are a couple points I'd like to expand on. First, the patch selects. Yep, if you hit "Stop" and then "Continue" they all reset. Bryce is right, during rehearsal this can drive you nuts. The organ suddenly becomes a piano, etc. When Ensoniq had this function to figure out, they choose to have the patch selects reset to default on "Stop" rather than on "Play." So, it's just the way the machine works - it's not our fault, honest. If we knew a way around this we'd use it.

Sounds - actually, I rather like our piano; pretty punchy for only 207 blocks! But, for those folks with 4x machines, we've got a

new Setup Disk in the works. Anyone using our sequences on a 4x machine will be offered the upgrade at no charge when it's available. We also plan to punch up the brass, add some reeds and vocal "Oooos," and completely redo the guitars. We might even look at the piano...

Bryce's suggestion of sending to other MIDI instruments is a good idea. Any of our users who are unclear on how to do this should contact us and we'll help you out with the details.

Regarding the inclusion of scoring and/or lyrics; this is a tough one. When we sell a sequence we pay a royalty to the songwriter (not the performer) through the Harry Fox agency in New York. It's handled under "Mechanical Reproduction" much as a piano roll is. When we asked about the royalty liabilities of including scoring however, we just couldn't get a straight answer. There were questions raised regarding copyright infringement, among other things. We finally chose to avoid potential problems by not trying to solve them. Sorry, no scores. (An interesting aside was that we were emphatically told by the agency not to

sequence any George Harrison songs because he didn't allow it.)

So, thanks again for the great review and the great magazine. And, hey Bryce - wait till you hear these things on an SD-1!

Sincerely,
Scott C. Lindstrom
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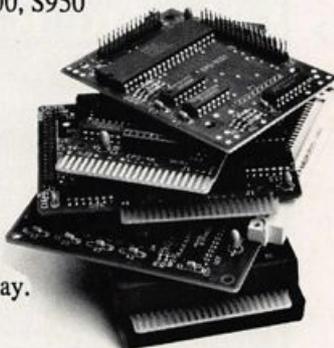
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